16456

Eastern Belt

Port Jervis to

Albany, N.Y.

July - Sept. 1938

0-28- Winslow to
Vitelia
28-42 Floor of old
quarry - last
Hamilton seen
at about 34.

Summit Hill
about 40-45' above
Rey.

2 0
1 6
3 6

331
341
325
DELAWARE
B M
403
404
B M 332
Voorheesville
379
367
368
School No 11
355
AND
349
Vly
1182
JOHN BOYD THACHER
PARK
397
342
ADIRONDACK
362
377
NEW
417
1072
385
472
468
B M
416
New Salem
389
760
488
478
748
542
1200
483
School No 15
Diamond
Hill
B M
926
Wolf Hill
712
634
529
469

NEW SCOTLAND

which maps have been published. Over 3,300 quadrang
the United States have been surveyed, and maps of
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addressed to

THE DIRECTOR,
United States Geological Survey,
Washington,

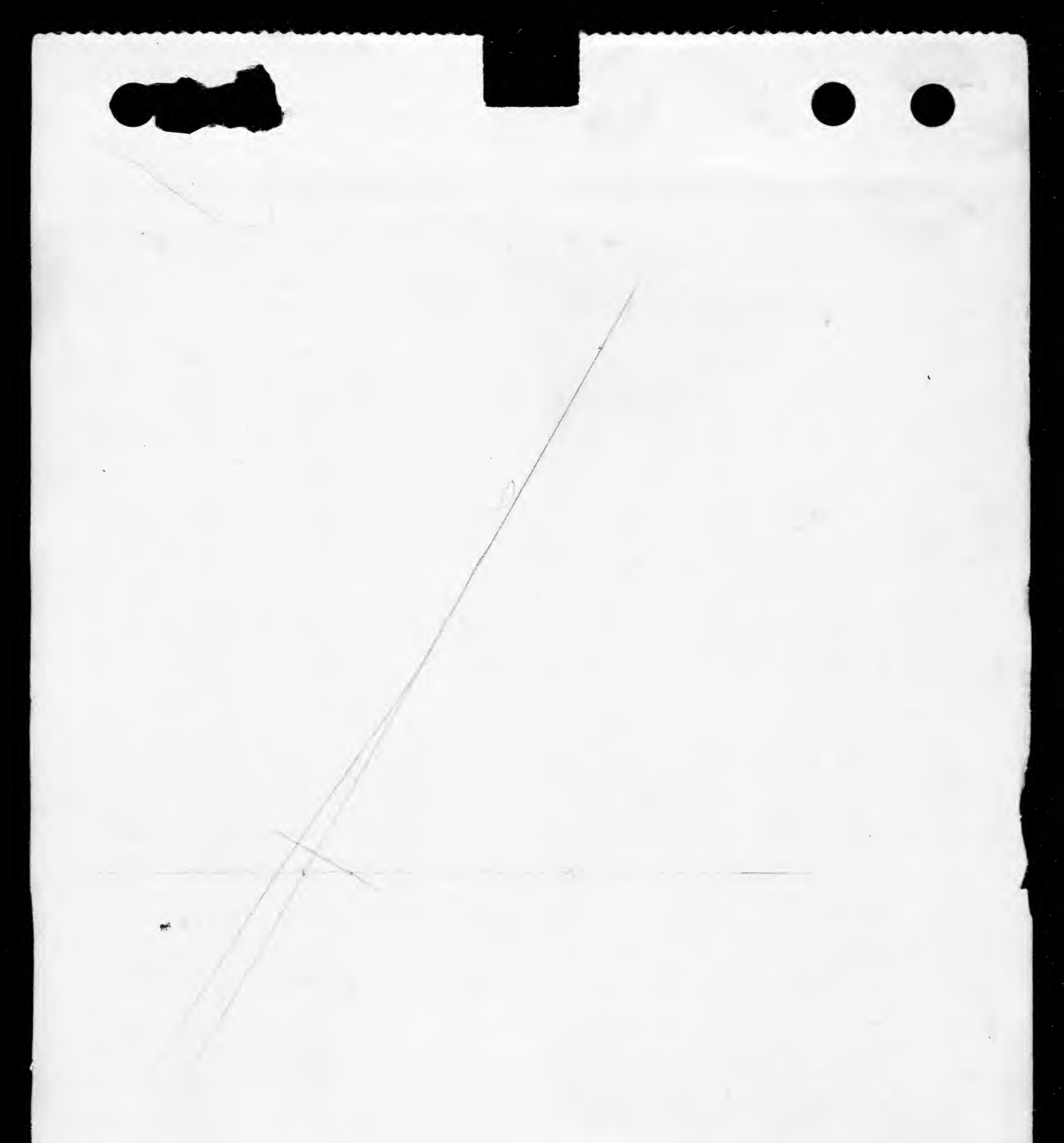
September, 1928.

1E67

The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes

Glickman = 2600'

Cherry I.
Millrift
B M
Old Bolton Basin
Shirley
Reservoir No 3
Sparrow Bush
Reservoir No 1
Germantown
Pt Peter
PORT JERVIS
Martin Lake
Shin Hollow
Smith Corners
Greenville
Minisink P O
Matamoras
Tristate
Tristate Rock
Carpenters Pt
Dutonville
Mashipacong Island
Logtown
DELAWARE
RIVER
WEST
PENNSYLVANIA
NEW YORK
NEW JERSEY
PIKE CO
SUSSEX CO
ERIE R R
NEW YORK AND ERIE R R
DELAWARE AND HUDSON CANAL
HUDSON
ONTARIO
NEVERSINK
MOUNTAIN
SHAWANGUNK
GREENVILLE
ROAD
Brook
Ratgers
A33
J264
J27



E O R E S T B U R G

SULLIVAN CO
ORANGE CO

BOUNDARY LINE

MAMAKATING

Beaverdam Pond

Paradise

N Y O & W R R

Quarry Hill

Kill

PIPE LINE

Little Pond

Big Pond

Bush

Trio

Falls

Stream

Prospect Hill

A3'

A3

Red

Calhoonzie

D E E R P A R K

Sand Pond

Godeffroy

Valley June

RIVER

Guymard Lake

Guymard

ABANDONED

WESTERN

Wells Pond

Reservoir No 2

Hugueno

Hawks Nest

ORANGE CO
PIKE CO

Jg 31²

Jg 32²

Cuddebackville

JERVIS

PORT DEO

Basher

LINE

FREIGHT

ROAD

KINGSTON DIV

West Brookville Sta

Port Orange

AND

Otisville

BM

ERIE R R

M O U N T A I N S

H O P E

Shawangunk Lake

Mount Hope

Shawangunk

Finchville

WALLKILL

1568

THE TOP ... TATES

...he United States Geological Survey is making a standard
...ographic atlas of the United States. This work has been in
...gress since 1882, and its results consist of published maps of
...re than 40 per cent of the country, exclusive of outlying
...sessions.

The topographic atlas is published in the form of maps on
...e sheets measuring about 16½ by 20 inches. Under the
...eral plan adopted the country is divided into quadrangles
...unded by parallels of latitude and meridians of longitude.
...se quadrangles are mapped on different scales, the scale
...ected for any quadrangle depending on its nature and its
...bable future development, and consequently though the
...ividual sheets are of nearly uniform size they represent
...as of different sizes. On the lower margin of each sheet are
...nted graphic scales showing distances in feet, meters, and
...les. In addition, the scale of the map is shown by a repre-
...tative fraction expressing a fixed ratio between linear
...asurements on the map and corresponding distances on the
...und. For example, the scale $\frac{1}{62500}$ means that 1 unit on
...e map (such as 1 inch, 1 foot, or 1 meter) represents 62,500
...ilar units on the earth's surface.

The standard scales used on these maps are multiples of
...e fraction $\frac{1}{62500}$. Quadrangles in thickly settled or indus-
...ally important regions are mapped on a scale of $\frac{1}{31250}$ or

...dually away and forms an inclined table-land that is ...
...ted by a few shallow gullies. On the map each of th...
...ures is represented, directly beneath its position in ...
...tch, by contour lines.

The contour interval, or the vertical distance in feet betw...
...contour and the next, is stated at the bottom of each m...
...s interval differs according to the topography of the a...
...pped; in a flat country it may be as small as 1 foot; i...
...untainous region it may be as great as 250 feet. Cer...
...tour lines, every fourth or fifth one, are made heavier th...
...others and are accompanied by figures showing altitu...
...e heights of many points—such as road corners, summi...
...faces of lakes, and bench marks—are also given on the m...
...figures, which show altitudes to the nearest foot only. M...
...ct altitudes—those of bench marks—as well as the geod...
...rdinates of triangulation stations, are published in bulle...
...t are issued free by the Geological Survey.

The lettering and works of man are shown in black. Bo...
...es, such as those of a State, county, city, land gra...
...nship, or reservation, are shown by continuous or brok...
...es of different kinds and weights. Metaled roads are sho...
...double lines, one of which is accentuated. Other pub...
...ds are shown by fine double lines, private and poor ro...
...dashed double lines, trails by dashed single lines.

enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently slop-

1569

STANDARD SYMBOLS

CULTURE
(printed in black)

or
d

Trail

Railroads

Electric railroad

Tunnel

Power-transmission line

p and
nes
l corners

State line

County line

Civil Township or district line

Reserve con
line

Land
l

vens

Tanks and oil reservoirs

Oil and gas wells

Mine or quarry

Prospect

S

Streams

Falls and rapids

Intermittent streams and ditches

Cana
ditc

New Location

5 4

Gillman Pond

Denton Falls

NEVERSINK

High Falls

B U R G

1590

1291

Fall Brook

1151

1285

Oakland Valley

B M

686

Oakland

315

M A M A K A T I N G

1448

1529

1443

Culvertown

1286

1084

1239

Kill

194

990

Pine

669

549

(ABANDONED)

CANAL

Haven

HUDSON

B M

506

KINGSTON

DIV.)

Dy305

Kill

AND

VERVIS

(PORT

Basher

585

DELAWARE

N.Y.O. AND W.

West Brookville

B M

501

SHAWANGUNK

MTS

SULLIVAN CO

ORANGE CO

MOUNT HOPE

the map are printed the names of adjoining quadrang
which maps have been published. Over 2,800 quadrangl
the United States have been surveyed, and maps of
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either of the same or of different quadrangles, for 5 cents
The geologic folios are sold for 25 cents or more each, the
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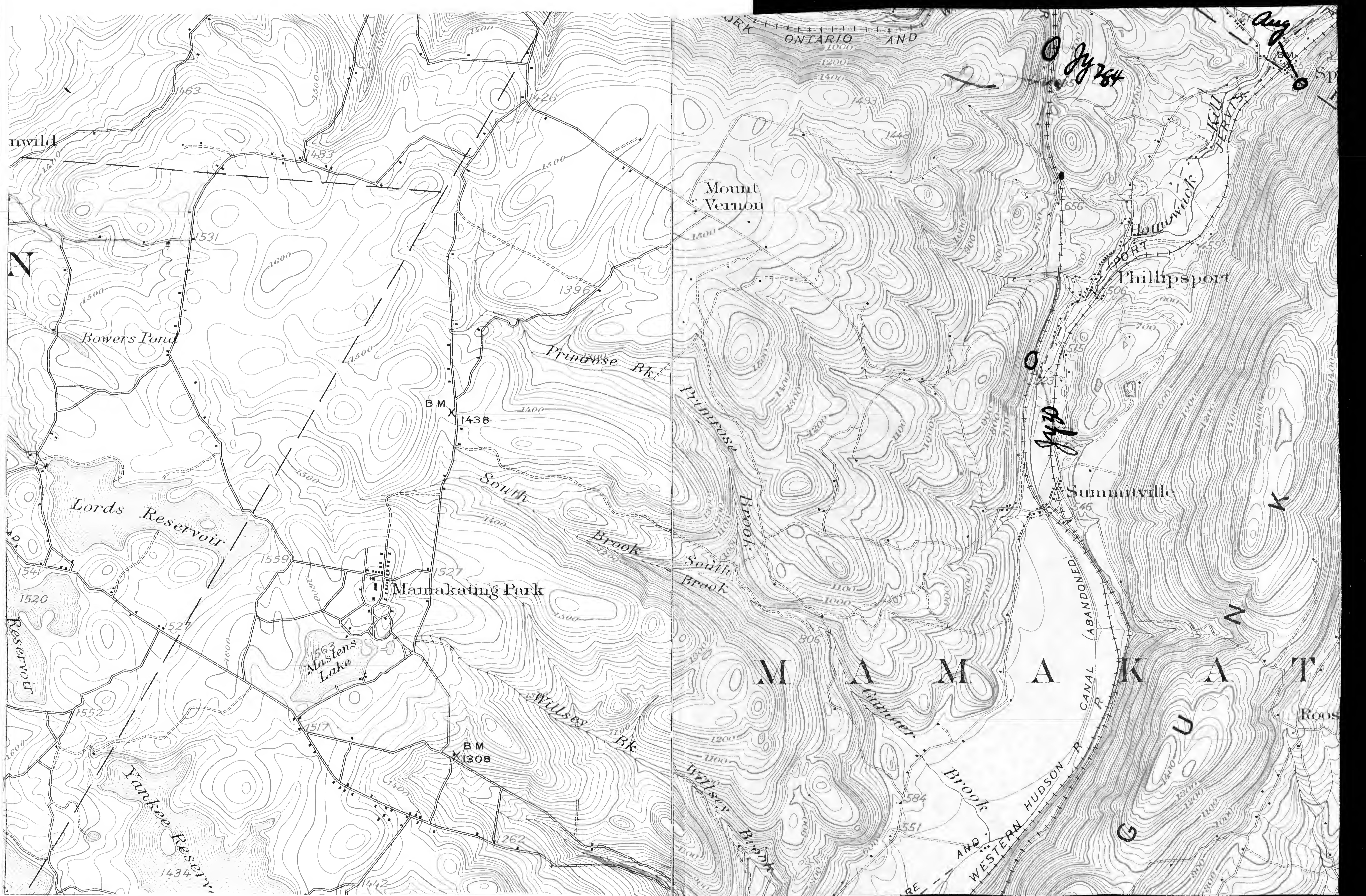
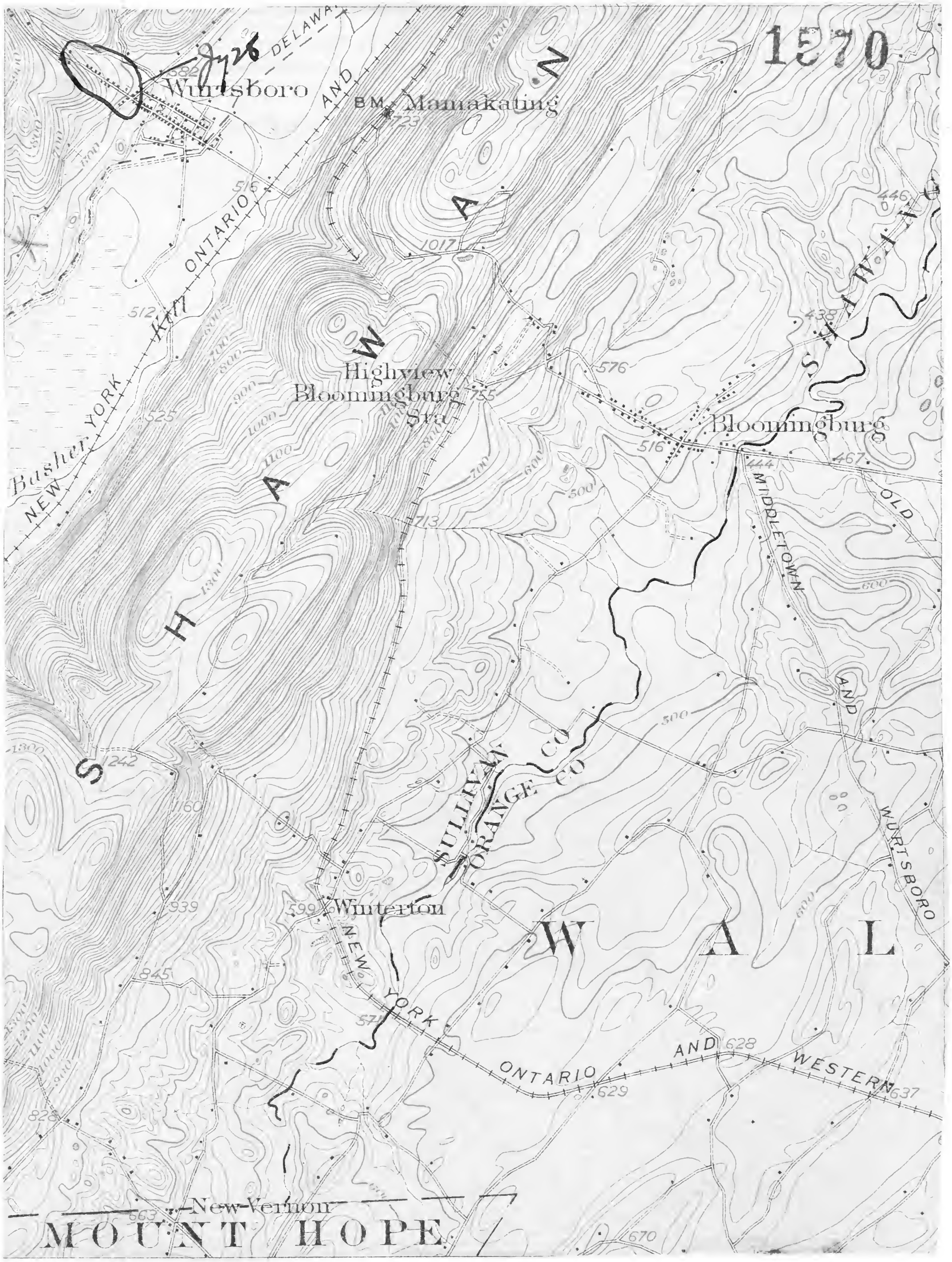
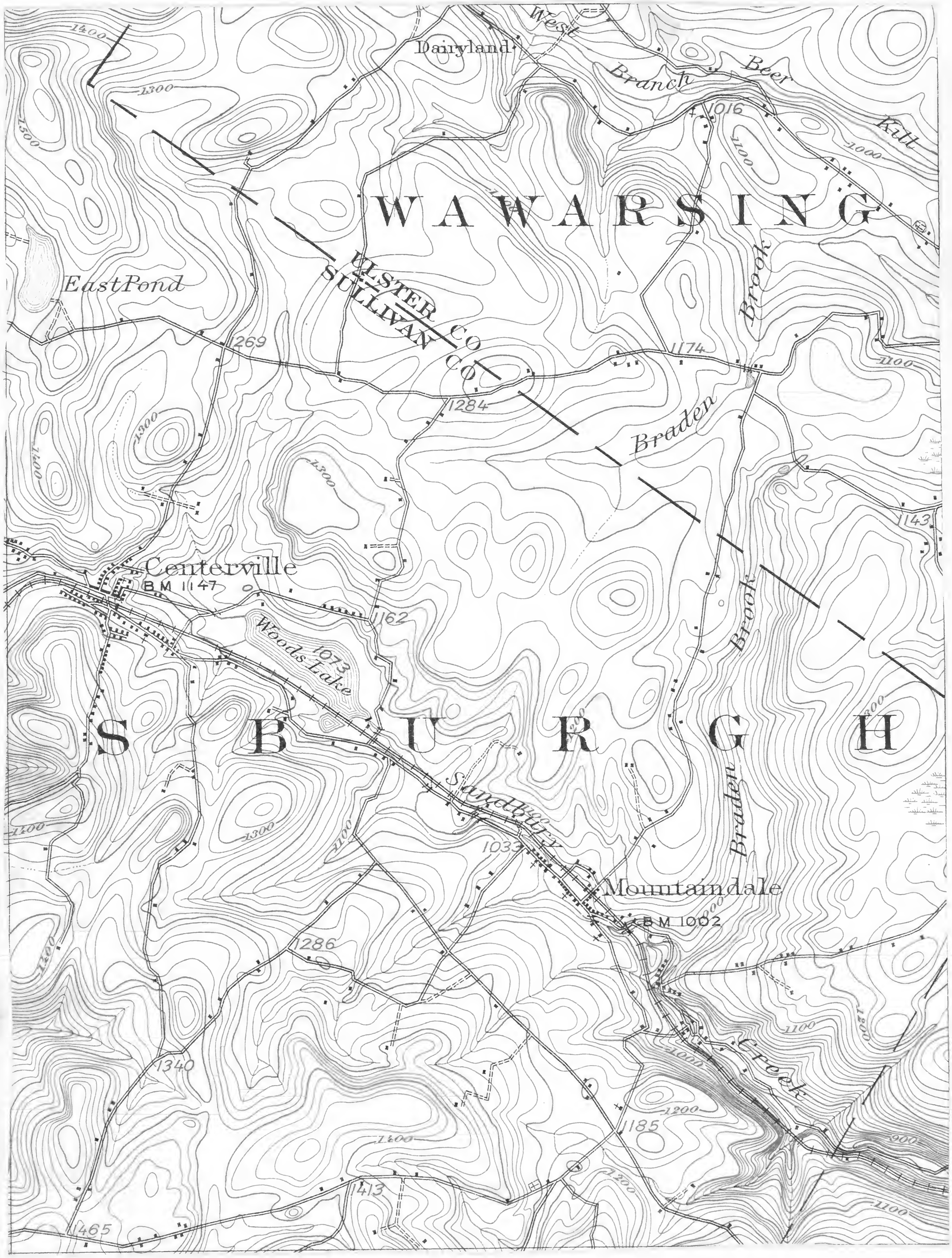
THE DIRECTOR,
United States Geological Survey,
Washington, D

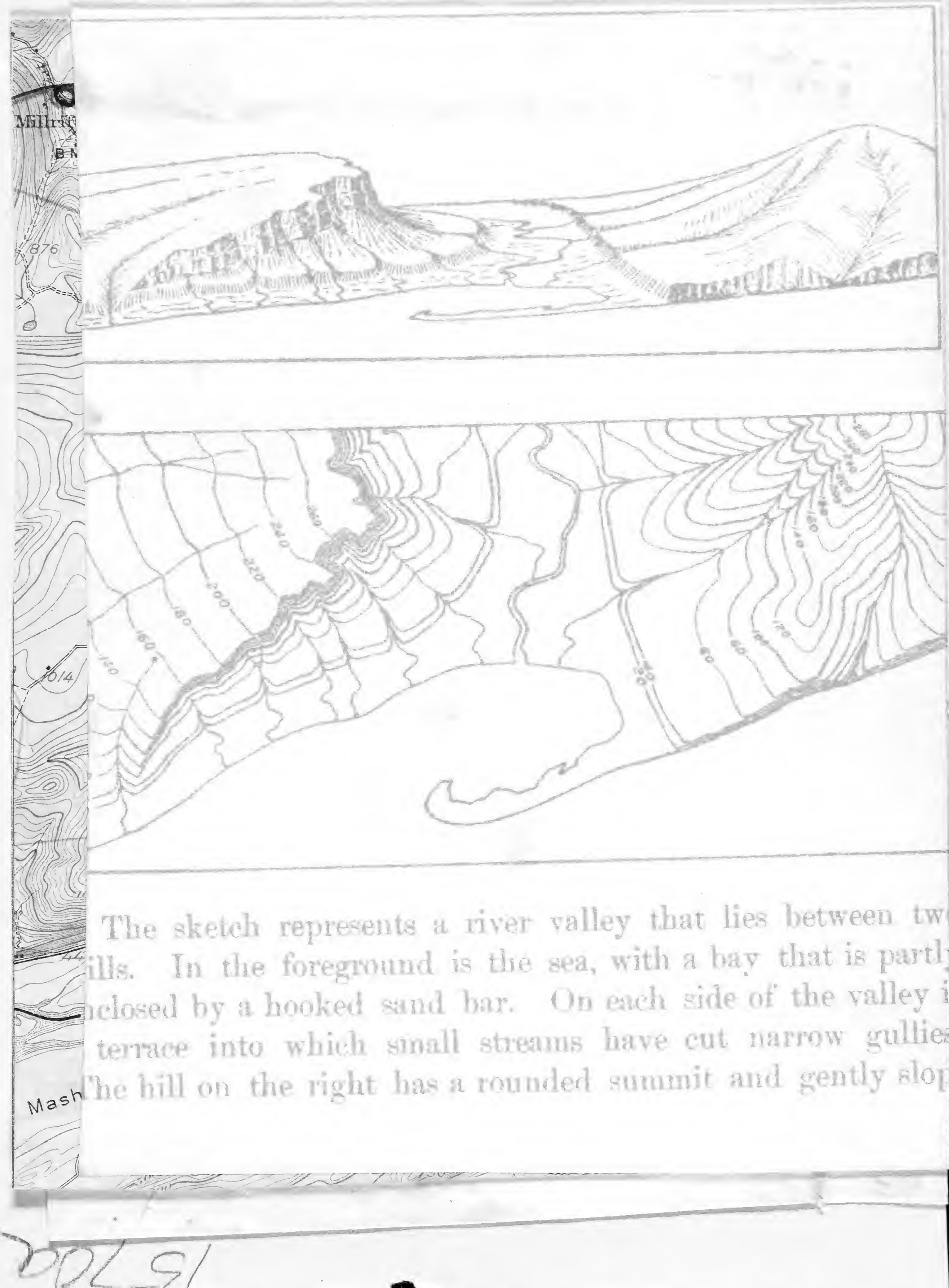
November, 1919.



ONTARIO AND
Mount Vernon
nwild
Bowers Pond
Lords Reservoir
Mamakating Park
Mastens Lake
Reservoir
Yankee Reserv
Primrose Bk
Primrose Brook
South Brook
South Brook
Willsey Bk
Willsey Brook
Gumaer Brook
BM 1438
BM 1308
Homowack
Kill
PORT
JERVIS
Phillipsport
Summitville
CANAL (ABANDONED)
AND WESTERN HUDSON R R
M A M A K A T
Roos


1570
Wurtsboro
DELAWARE AND
BM Mamakating
1723
NEW YORK ONTARIO & WESTERN
Highview
Bloomingburg Sta
Bloomingburg
Basher
NEW YORK
SULLIVAN CO
ORANGE CO
Winterton
MIDDLETOWN
OLD
WURTSBORO
NEW YORK ONTARIO AND WESTERN
New Vernon
MOUNT HOPE
HAWK
WALL


WAWARSING
SULLIVAN Co
ULSTER Co
Dairyland
West
Branch
Beer
Kill
East Pond
Centerville
BM 1147
Woods Lake
Braden
Brook
Braden
Sundbury
Mountaindale
BM 1062
Creek
1400
1300
1500
1269
1284
1174
1016
1100
1000
1143
1162
1073
1033
1286
1340
1413
1465
1185
1200
900



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terrace into which small streams have cut narrow gullie
The hill on the right has a rounded summit and gently slop

DDL91

1576a

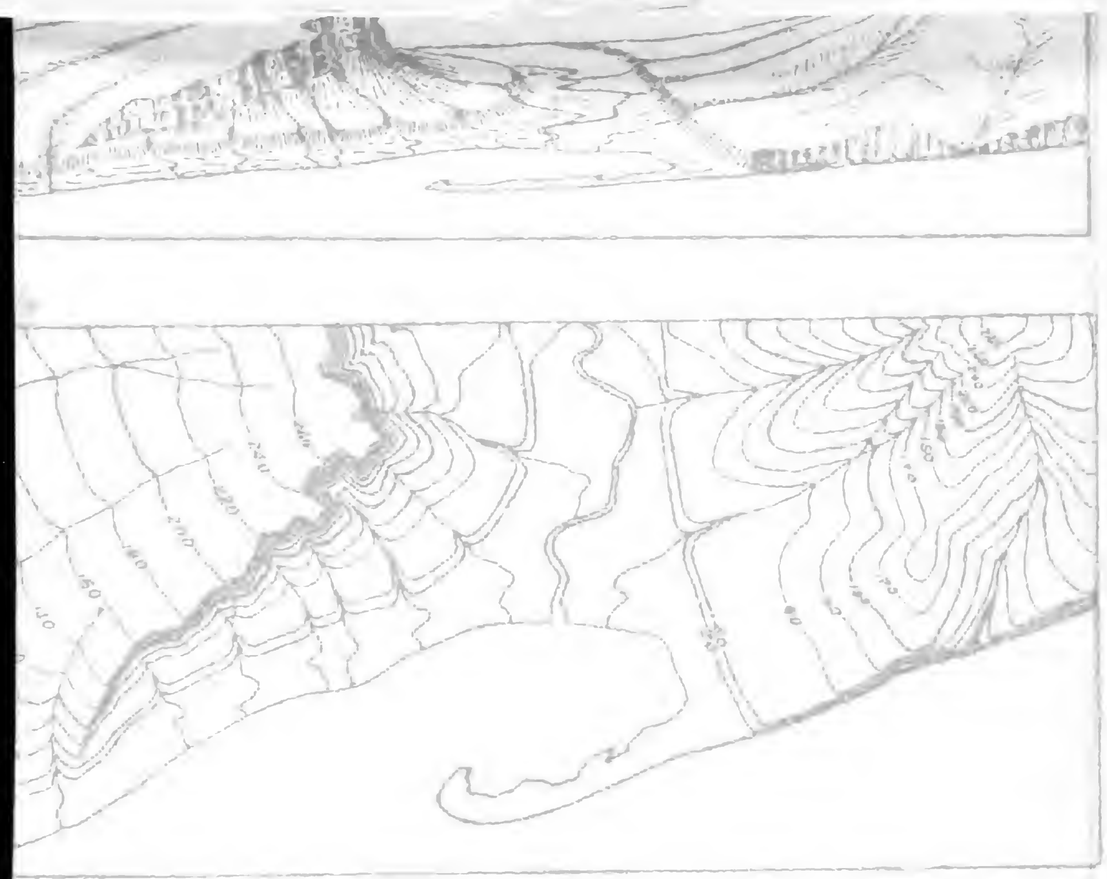
May 1936

SULLIVAN CO
ORANGE CO

Beaverdam Pond
Paradise
Quarry Hill
Kill
Rio
Bush
Falls
Pipe Line
Little Pond
Big Pond
Prospect Hill
Roses Point
Cuddleb
Valley Junc
Godeffroy
Sand Pond
Cahoonzie
Lake Marion
Guymard Lake
Watts Pond
Hawks Nest
Reservoir No 2
Huguenot
Cherry
Millrift
Old Bolton Basin
Reservoir No 3
Sparrow Bush
Reservoir No 4
Martin Lake
Shin Hollow
Germantown
Pt Peter
PORT JERVIS
Tristate
Tristate Rock
Carpenters Pt
Dutonville
Smith Corners
Greenville
Minisink PO
Logtown
Mashipacong Island

DELAWARE
ORANGE CO
PIKE CO
SUSSEX CO
PENNSYLVANIA
NEW YORK
NEW JERSEY
BOUNDARY LINE

ERIE R R
NEW YORK AND ONTARIO
NEW YORK AND HUDSON
MONTICELLO
JERVIS
PORT
WESTERN
ABANDONED
ROAD
BROOK
RIVER
MOUNTAIN
BM



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United States Geological Survey,
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September, 1928.

1571

Port Jervis May 23, 1936

(1)

Visited beds in railroad cut between Millrift hotel and Erie bridge over Delaware. Heavy bedded sand arenaceous shale and green shales. One thick storm roller bed as fine as I have ever seen. Fossils are common, particularly on the underside of slabs of sandstone

Belongs to Trimmers Rock

Paracyclas   Camarotoechia
Actinoptera   Spirifer
Cypricardella   Leiorhynchus

The fossils could be Hamilton or higher.

May 23, 1936

Carpenters point on peninsula forming Port Jervis Cemetery outcrop of Onondaga probably close to top. Strike N43E 13° N.

May 24 1572

(2)

Exposures along SE side highway ~~N.Y.~~ 209 ~~about~~ 1-2 miles from city line
Coarse arenaceous sandstone strongly cleaved, cleavage 60°+ to SE. Strike N 43° E, 33° NW. Only fossils seen are *Ceratopora*, which Mr. Chadwick says are ~~characteristic of the~~ the only fossils found in the lower part of the Mount Marion.

MPC. says see road Catskill to Great Falls of Kaaterskill, about 1½-2 miles NNE of Falls Wesley Hauck Farm (yellow locust trees), follow brook and near base of hill is a cascade + shaft in black shales.

May 24'
Onondaga dipping east.

I measured 15° dip but
Mr. C. says 33°: May
be a steepening of
dip NE along strike
measuring valley in this direction

Mileage on drive in Elbo Pk

15733

90.60 —

90.95 — 1st stony bend 0.3

91.09 — Starfish bed. 0.14

91.20 — left loop

91.32 — Tropidoleptus

91.58 — fork to slay-drive (Camp Rock)

91.64 — Vitulina

92.00 Summit

92.10 Bend

92.18 "

92.32 "

92.40 "

92.50 — " fossils

92.68 ditch

93.24 — fork to Mt. Peter.

2.65

May 24[2] 1574

(4)

Exposures of 30' or more of fine arenaceous shale which crumbles to ~~thin~~ small lumps. Dark colored but with white streaks. No fossils seen. These overly May 24

M 24[3]

Long exposure of fine + lumpy arenaceous sandstone, no storm-rolled, no cross-bedded ss. Saw Nyassa, Grammysia + large Spirocystia. Dip 37-45° N50-60°W.

M. 24[4]

There is an excellent section along the road up to Mt. Peter in the new park. The beds revealed vary in lithology but all are predominantly sandy. There are many storm-rolled beds. About 0.44 mile from beginning of road is a layer a foot or less in thickness containing large Spirifers, Rhipidomella, D. arcuata, P. flabellum, Grammysia constricta, Cimitaria elongata, Pal. constricta, P. emarginata. Below this bed an occasional G. alveata and Nyassa were

1575 (5)

found.
At 0.71 miles were found
Tropidoleptus and Leptostrophia
At 0.99 a hard sandy
(calcareous?) layer abounding
in Vitulina was found. This
lies under the new power line
I am not sure if the section
to Vitulina is just Skaneateles
or Skan. + Ludlowville.

The ditch up the south-
east face of the hill exposes
sandy mud-stone all the way up
the lower part being fine-
grained but the upper 1/2 at
least being coarse and breaking
into heavy lumps. Fossils are
rare, also Rhipidomella and
Nephriticeras ~~buchanan~~.

May 25 1576 (6)

Lower entrance to ditch in at
0.2 mile from common (A).
N15°E — 34'
Lower 5' at bottom of ditch is
coarse lumpy sandy mudstone —

N33°E - 76'
From 5'-25' covered
25'-35' - arenaceous mudstone
35 - 76 - covered.

N5°E - 136'
76 - 131'
Sandy lumpy mudstone breaking
into rather large blocks.

N20W - 239

at 146 - Cyrtonella, O. constricta, E. angulata
at 184 - Thysanoa angusta
~~at~~ 221 - 226 covered

at 221a 1' heavy, bedded N45°E 15° NW. /

The rocks in this interval
is coarse heavy-bedded
sandy mudstone or shaly
as, breaks into thick irregular

lumps. Saw bg. granules and Athyris.

1E77 (7)

N3°E — 368'

239–245 – very hard ledge coarse irregularly fracturing ss.

245–279 – ss. fine grained slaty, massive at base becoming massive, irregular fracture very hard at top.

Nucula arguta, P. flabellum

279–303' Very heavy, irregularly fracturing slaty ss, hard breaks into big lumps.

Q pinnaeps

303–368 Lower 15' slaty blocky ss. upper part coarse heavy, lumpy ss. End

368–380' Intersection of sky-line drive and picnic grove This is the general level of the grove

Fossils from upper part of ditch –

Lingula

1578 (8)

M 25'

Sloping dip face just about 60-100 yds NW of flag pole on Pt. Peter. Hackly shaly ss. with

V. arguta c — Leiopteria
P. flabellum c Athyris
Spirifer audaculus = n. sp.
Sp. mucronatus A. pincops
Camarotoechia Productella
Aviculopecten H. dekayi
Sp. audaculus
P. lirata a.
M. concentrica

~~Located on NW side of road taking outgoing traff~~

Pt. Peter forms 3 heads on map, 1st is point Peter, 2nd is outcrops above described; ditch comes into 3rd.

M 25' located on N W side of exit road from Pt. Peter & and at intersection of Pt. Peter rd + exit rd.

(Exp with Nyassa (Pt P))

Ditch + Pt. Peter all Marcellus I think.

Send Mr. Plonffer plaster cast of Diplima

1579

At N end of Pt. Peter Paracyclas Lioptera (small), D. dekayi (9)

Hill behind (just N) of camp contains blue argillaceous sandstones with Rhipidomella they strongly suggest Moscow

Vitulina ledge 5-6' thick
More probably 2-3'.

May 26

0.32 mile SE of stream (1 mile SE of Sparrow Bush (marked V) great block with coquina of Sp. granulosus, suggesting starfish bed.

MH'

1580

10

July 19.

Stop 1. Chestnut ridge of Little Gap on March Chunk Road. Fault on north side ridge along road shows Onondaga at base (few feet) overlain by Marcellus. South comes conglomerate & Esopus. Fault against Marcellus

See B. L. Miller on Mineral Springs for structure at Palmerton

Stop 2 Bowmanstown — 1/4 mile S of RR Station Onondaga overturned to N lies on Marcellus with Bucholz. 275 paces north of RR Sta. appears coal bed of about 35' or more thick containing Elytha, Spirifera, Chonetella & others. Hamilton continues N to Nio Hollow where a sandstone 10' comes in. Just below this 35 about 3-5' comes Rhipidomella, Atrypa and Atrypa. Suggests upper zone of Hamilton (Spirifer Atrypa zone)

Lehigh

Stop 3 On U.S. Hy 309 about 500 paces N of Bowmansport Sta on C.R.R N.J. about 20' Gully with Hypo. + Eclimocoelia N89W 47°N

Stop 4 Across River from Weissport to Lehighton on S side Lehighton at old bridgehead - Coral bed = Centerfield

July 20.

Stop 1 Onondaga on temporary 209 (Pa 402) about 2 1/2 East of East Stroudsburg

Stop 2 On Erie (N.Y.S.&W.R.R.) at Water Gap Sta.

Stop 3 US 611 over Godfrey Ridge just South of Stroudsburg. Excellent exposure of Esopus about 1/2 mile NW of Foxtown Gap. Contains Leptocoelia about 25' below top of Esopus. Onondaga exposed at base of hill. Beds on slope of hill dip steeply north & nearly flat on top of hill.

[redacted]

1582 (12)

Stop 4 — Quarry on King St. on north edge of Stroudsburg. Marcellus dark gray shale about 40' thick. Band with Ambocoelia about 15'-20' up. L. limitare a.

Stop 5 — Coral bed — On Pa 2 miles N of Stroudsburg

5' few corals
10-12' living ss full of digitate + cup corals — B
6' blue calc. ss. fossils c. Corals few — A
Blue ss fossils rare

A — Dark blue calc. ss. with a few scattered corals. Sp. venustus, T. gibbosa, Ely. thac., L. perplana etc.

B — 10-12' - dark gray calcareous ss abounding in corals. Cystiphyllum la, Heliophyllum Favosites, digitate Favosites Cyathophylloids Large corals are most abundant in the lower 4' of bed B. In upper 6-8', smaller corals are prevalent & invertebrates common. Sp. venustus occurs thru B.

C. 5' sandy stone few corals many invertz.

1E83 / 3

Stop 6 — Fully Junction 190 + 90, 3 mi. N. of Hooksburg, Brookland Creek Valley. All thicknesses approx.

5'	E	A — Hamilton dark shale with Tullia
10'	D	B. Dark shale, calc. bearing with elongate fracture, Hypothyris rare, Leiorhynchus Styliolina rare, Tentaculites in upper 10-20'
Covered 20' ±	C	
40'	B	C. — D. — 10' hard sandstone with Camarotoechia, Rhipidomella, Tropidoleptus, Hypothyridina
10' ±	A	E. Shaly fracturing zone with Camarotoechia, Hypo., Elmorella, Leiorhynchus

N86E 22°N

July 22 Section along Hy N.Y. 42, 97 (Park Ave.)
Section begins at fork of river road (West Main Street and Park Ave. Lowest exposed bed of hard sandstone with irregular fracture dark blue gray in color. Strike N 57°E 15° NW. No fossils seen. This road intersection is 550 paces from traffic light where Hy 207 goes east

This lower ledge makes uppermost ledge of bluff under Pt. Peters, Hy. goes from junction with West Main N 72 W

46 paces from junction rock becomes softer shaly sandstone breaking into irregular ~~[illegible]~~ chips + fractured into irregular lumps. This rock [illegible] looks much like the [illegible] continues to 164. Small clams. Small concretion

164 – 238. Very massive, very dark gray, heavy bedded, lumpy ss. G. alveata?

238 – 260 – Finer grained sandstone breaking into small fragments. 1/2' concretion band on top.

260 – 276 Sighted [illegible] 55°E + Edge of hill just S of P.T. S 70°W. Thin bedded [illegible] gray ss. and from [illegible] breaking into thin flat pieces.

276 – 314 – Similar thin-bedded dark blue gray shaly ss. with shaly fracture. Road turns to N 15° W where

[redacted]

1585 (15)

Just over bridge over R.R.

314-435 — Very massive little fracture dark gray ss. like that below the ... Thin bed at top containing Athyris; Chonetes mucronatus! Sandstone becomes gradually coarser & harder to top. About 6' below Athyris bed Rhipidomella is common.

435-535 — hard shaly sandstone breaking into moderate sized lumps dark blue gray in color. Above this and included in most places lumps crowded with large crinoid stem segments. Bed just below with lg. granulosus filled with pyrite.

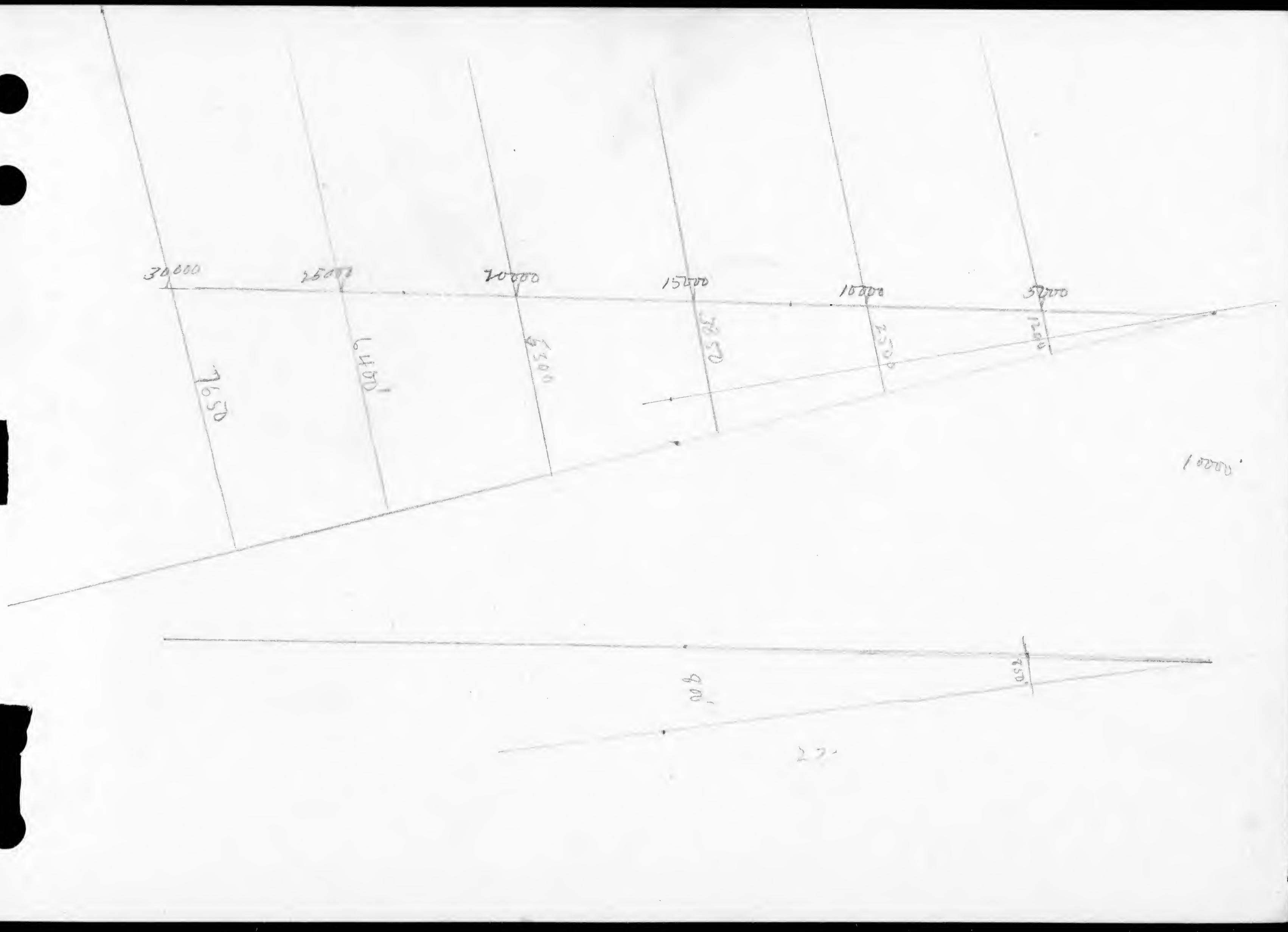
535-565 — sh. about 10' of shale fossils common:
Leiopteria with ..., Nyassa arguta, A. fasciculatus, P. flabellum, Homalonotus, S. granulosa type, A. bulbosus, A. cora. At the top of this bed A. bulbosus is the commonest fossil.
Strike N61E 14°NW

565-621 — In top of this interval fossils are common! Large S. granulosa, L. perplana, D. alveata (small), Goniophora

621-951 — Coarse heavy bedded blue-gray ss. Exposure end at point where old and new roads join, about 50 yds southeast of the city line.

951-1241 — Covered — Elks Park entrance

1241-2976 covered.


30000
25000
20000
15000
10000
5000
7650
6480
5300
2250
1150
1000.
90.
27.

2926— 2958— About 15' of cross-bedded & thin bedded blue gray ss containing limonite masses containing lenses of large Spirifer and one well defined band made up of large numbers of the Spirifer. Dip on Spirifer band is 7½° (component)

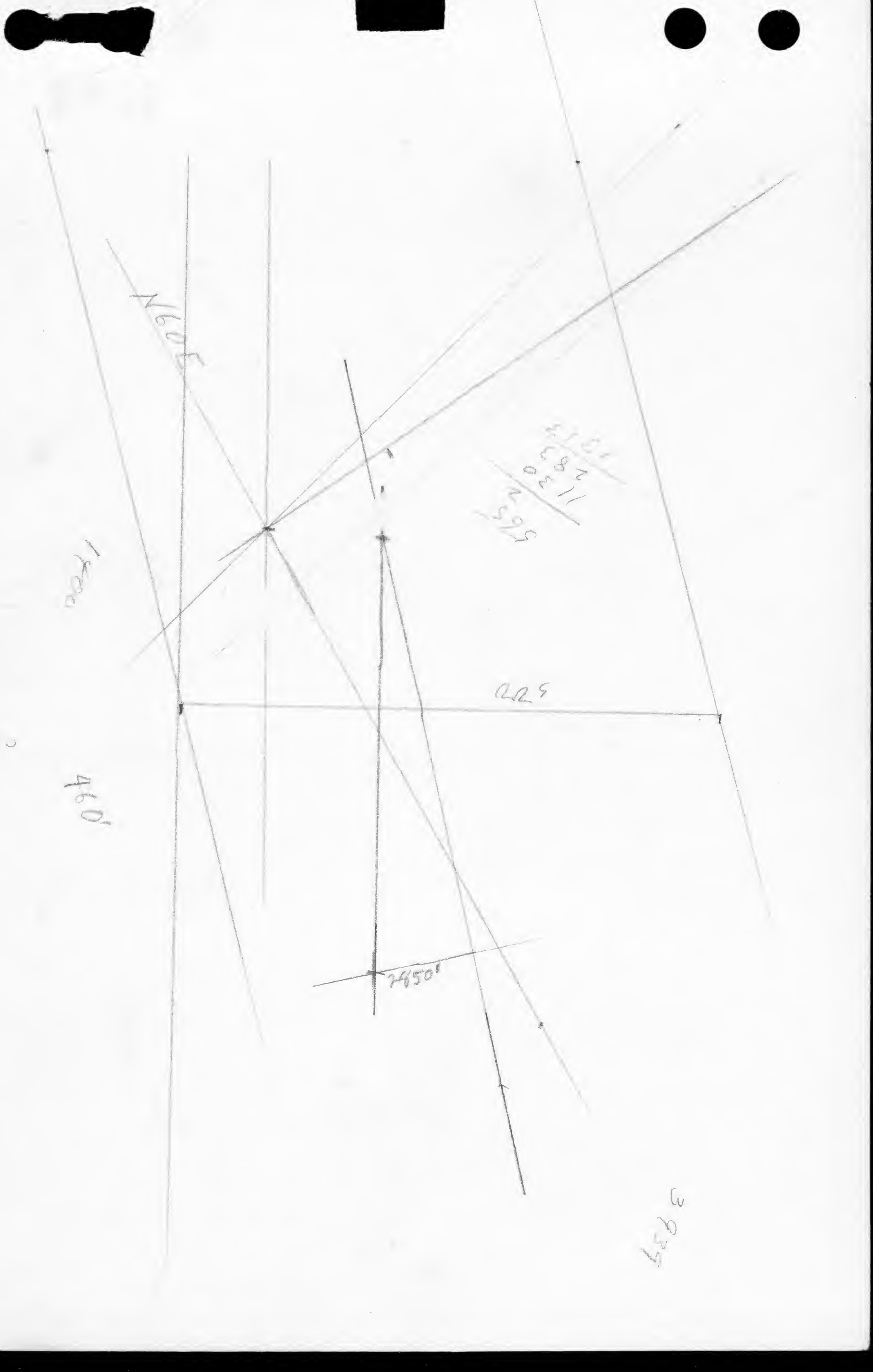
2958—3058— Covered. At 3058 a small ravine cuts up into the woods. Many exposures in woods.

Portland Point

About 55-60' above road comes Vitulina bed. above cross-bedded ss in a relationship just like that in park. Above Vitulina beds are all shalier toward top of hill where Tropidoleptus appears

3058
2
6116
1529
7645

3058—3908— covered. At bend of road comes about 20' storm-rolled ss underlain by blue gray sandy sh. N60E 8°NW.


N60E
225
460'
2450'

[redacted]

1587

July 24 — 0.7 miles from camp Park entrance, 0.1 mile from city line
Entrance N20W, 0.35.

N20E, 0.15 17
~~S~~13E 0.10
S42E 0.15
due N 0.25 Junction to House
S79E. 0.15 Vitulina bed
S79E 0.10
S6°W 0.20

Bird Peter — much fractured band so with little evidence of bedding
P. linata[a], H. debayi, c,

Exposure in front of Transient camp contains P. flabellum, Aviculopecten, large Spiriferoids, M. concentrica. Presence of P. flabellum indicates Ludlowville. _Vitulina_ occurs ~~shale~~ not far above this bed and I think is the base of the Moscow

Downhill from starfish bed at first sharp bend of road is a layer containing Chonetes coronatus (flat) in abundance. _Cypricardinia complanata_ was seen in starfish bed, also G. crenulatus. This bed suggests Skaneateles but may be higher

July 25

1588 /18

Strike on Onondaga N54E 13°NW.
[illegible] 100 yd SW of fork N40E Strike
Jy 25[1] - fossiliferous Esopus with Leptocoelia
and Rhipidomella. Outcrop marked also
is undoubtedly uppermost Esopus or
Lowermost Onondaga
Jy 25[3] - Lower Onondaga transitional?
to Esopus below. Esopus well exposed
Along R.R. and highway

July 25[4]

Roses Point - Section begins 325 paces
SW of intersection of road and RR
Beginning of section almost on strike
200 paces SW. of road following
fossils seen in lumpy fracturing
sandstone:
N. arguta c Leiopteria
Large Spirifer Rhynchonella
These run for 50 paces. Rock then
becomes shalier & breaking into
~~thin~~ smaller pieces. Strike N45°E
42°NW measured on upper bed with
Nyassa. No section continues 50 paces
along road to NW.

to nearly the top of the hill. We found practially no fossil. The rocks were mostly wet and ~~Condidenc~~ conditions not good for seeing fossils. From Prospect Hill down to Huguenot exposures occur along the road. Fossils are rare but all seem to be Hamilton forms. The Sp. fallisi at the top of the exposed section may be near the top of the Hamilton.

[redacted]

July 25[5]

1589

19

Dark gray thin bedded ss. + blue gray ss with Tropidoleptus, S. tullius, ?. subtellata, Actinoptera. Suggests part Hamilton
N42E 16°NW.

Jy 25[6]

Varied ss. with T. carinatus, Nucula, Pal. tenuistriata, et C. coronatus.
0.35 mi.

Jy 25[7]

Irregularly fracturing ss. with Tropidoleptus + large crinoid stem segments

Jy 25[8]

Dark gray mudstones with P. flabellum snails, Athyris, Goniophora.

Jy 25[9]

Cut about 100 yds long of purplish weathering mudstone with H. elongatus

Jy 25[10]

Long section in woods up gully, saw what suggested Sp. tullius near top. Rocks nearly all ss. but few fossils

Over

July 25

Spent most of morning looking at Esopus. Excellent exposures along the east shore of the Neversink opposite Godeffroy and Huguenot. Due east of Port Jervis Esopus is exposed along the Erie R.R at the big bend and for some distance to the SW. Along the highway just below the railroad Esopus is exposed at J25'. Here it has Leptocoelia and Rhipidomella. A little SW. of this exposure the Esopus has a veneer of several feet of lower Onondaga.

At Rose's Point the lower beds contain Hyattidina and thus belong to Skaneateles. This section runs for 350 paces. From the road intersection at O in Monticello RR. and for about 75-100 yards outcrops can be seen in woods and these go up about ~~250~~

July 26 1590 20

N30E 13° NW. Section extends on Prospect Hill from about 980 to about 1080. At base is a heavy ledge of X-bedded ss. followed by crumbly greenish gray beds, then a heavy ledge of X bedded ss. The X-bedded ss. are interbedded with the crumbly greenish beds. The latter are of the ~~typ~~ continental type. We saw no fossils

Jy 25[9] = Nuculites oblongatus in biologic

Jy 25[5] revisited - outcrop about 125 yds. long beginning at about 900'. Found also P. liratal here. The dark thin flaky shaly ss suggest post-Hamilton

Jy 26[1]

Dark, almost black, shaly ss thrown out of a trench in deepening stream. Contain Paracyclas, Actinopteria and plants

Jy 26[2]

Elevation about 660. About 40 feet of irregularly fracturing sandy limestone with:
Large Spirifer, P. hamiltoniae, P. rara [illegible] Tropidoleptus, [illegible]. About 0.1 mile farther down road is similar rock but without fossils. 0.05 miles

[redacted]

1591

still farther down are plates with 'storm-rollers' about 10'
Component of dip 18° NW. 21

Jy 26³ – Exposures of blue gray shaly ss or mudstone with a few fossils: Cicornatus, Camarotoechia, Pelliopsis, Spirifer. N42E 25° NW
Storm roller beds are sandwiched between the shaly beds. Exposure begins about 25 paces west of short road intersection with main road & extends to west for 128 paces.

July 26⁴ Section approximately N30E over hill overhanging beds with Vitulina.

A. Vitulina comes about 70' above the highway at feet. It underlies heavy-bedded concentrically fractures as with storm rollers near top but becomes fine grained and thinner bedded.

B. Vitulina occurs in the midst of the ss in calcareous material that has been leached. Rhipidomella is abundant, also a large Spirifer. The ~~Vit~~ bed containing Vitulina is about 3' thick. Above Vitulina about 1' is a thin layer with many Rhipidomella

Vitulina — B

Coarse [illegible] Conchoidal fractures — A

1592 [redacted]

probably the same as bed behind
transient camp. Above the 22
the rock is shalier, thin-bedded
& irregularly bedded, dark blue
gray in color. 230' above
Vitulina comes the first storm-
roller zone. This is practically
the first change in lithology
above Vitulina.

Above 230' the rocks become
coarser but preserve their
Hamilton look. At 360 the top of
the hill is composed of a storm
roller zone with the dip of thin-
bedded ss. going in any direction.
This rock has the appearance of
Post Hamilton, Actinodesma seen
here, Tropidoleptus, Cyrtina

Went up hill, at top bearing on
Erie R.R. to Millkiff N60°W. on
[illegible] hill at Matamoras S12°W
On Hightop S22°E. The intersection
of these brings us to 360' above
road by barometer

At 305' on way down Tropidoleptus
[illegible]. At 295' T. carinatus,
Chonetes, Spirifer sp.

1593

Jg 265 — 0.4 mile from Erie RR bridge over river road to Germantown. Exposure extends from first house on SW side road upstream for 450 paces. 23

At 90 paces from house: Pol. tenuistriata, Chonetes coronatus (flat).

At 117 paces large Sp. granulosus, C. complanata, Rhipidomella, a.

N 62°E 12° NW.

210 contorted bed.

Between 280 & 350 were seen: Sp. granulosa, Rhipidomella, Mucrospirifer, Spyroceras, O. undulata, Pal. constricta, Paralellodon hamiltoniae, C. coronatus, A. arcuata. Cyrtina

At 400 rocks are sandier, lumpier & breaks into small lumps. S. pulcronata

At 450 section ends. T. chinotys.

I believe this is all ~~Ludlowville~~ low in the Moscow.

Black, dark gray sh.

July 27

Jy 27 — Just below Erie RR bridge over Delaware at Millrift. Rocks at river level and up into R.R. cut are post Hamilton containing Leiorhynchus, Actinoptera etc. Rocks consist of flaggy ss. interbedded in dark shaly ss containing the Leiorhynchus. Exposures along road from Erie R.R. bridge continue for 0.8 mile.

Jy 27 — Started at road at 520. At road about 20' of ss N W NW. Covered 115' to 635' on slope. Section approximately N40-50°W.
635 – 700 ~~covered~~ Blue gray shaly hackly ss.
700 – 755 — covered
755 – 775 — blue gray ss with contorted bed at top. Same bed as that at top of hill over Vitulina. This contorted bed consists of hard concretions of ss. with thin bedded shaly ss wrapped about them. N62E 16°NW

Only marine exposed

Portage Conf of Sparrow Bush is 0.35 mi from intersection with short road to farm house

Jy 27² — ledge of contorted ss. like that on top of hills near Sgurant Bush. No fossils seen. Shaly ss under contorted bed breaks like shale 25

Jy 27³ — About 45' or shaly ss. with contorted bed at top. Contains T. cornutus & Spirifer like tullius

Estimate — Footage to contorted zone, dip of 15° on Vitulina bed to be 2650'

1596 [redacted]

Miss Goldring wants good
Hypothysis.

76

July 28 – At West [?]Burkville the New Scotland is exposed at the base of the hill on east side of Valley. From the New Scotland to the [?]Onondaga must be about 1180'

Section along road (N.Y. 17) west of [?]Waitsboro. First rock exposed just east of forks ½ mile west of [?]Waitsboro. Exposures extend 124 paces to east of fork. At base about 1' of dark shale succeeded by ss. [illegible] moderately heavy-bedded (1") to thin bedded with 1 storm-roller layer near top. At 25 paces a doubtful Tellinopsis was seen. N 37°-45°W 56°NW.

0.2 mile W of stream + highway crossing [illegible] N 57°E 23° NW. These are clearly post-Hamilton, as may be all the exposures west of [?]Waitsboro.

Jy 28 – Oriskany N 35 E 46°NW – 60°NW
Jy 28 – Esopus-Glenerie Contact at about 660' to SW of contact down hill excellent Glenerie exposures.

1597

Spring Glen

N37E5

Exposed at sharp bend in road

1598 [redacted]

Jy 28^4 Cut in thin bedded ss. on Rd.

Jy 28^5 — moderately heavy bedded ss with plants N35°E 53°NW

28

July 29

Jy 29 — 0.9 mile along Sandburg River road from intersection at Spring Glen. Green crumbly shales and olive shales interbedded with coarse blue green sandstones containing plant fragments and clay balls. Section exposed for 125 paces. Strike N32°E 12°NW. Olive green sandy shale at base of section (Stat 6) a few fossils were taken. These suggest basal Gilboa.

Probably very top of Hamilton

1.55 ~~ft~~ miles from intersection at Spring Glen come first reds seen

Jy 29^1 — Exposed on opposite side of stream from section of road extending from outcrop at Jy 28^3 ~~upstream~~ to first house at bend of road are exposures of ss, X-bedded, interbedded with ~~red~~ olive crumbly shales. Would guess the base of these exposures to be no more than 100 ft from outcrop

[redacted]

1599

29

with starfishes.
Beds go up slope 40'

July 29th Section along US 209 NE of Rauren Kill. Section begins at about 0.1 mile N of crossing of Rauren Kill with highway. For 54 paces dark blocky shaly ss without fossils is exposed. N25°E 42°NW
84 paces to junction of Rauren Kill road & 209

North from junction of Rauren Kill road & 209 97 paces covered
97–230 — Rather blocky shaley nearly black ss.
229 — 287 — covered
287 — ~~At~~ about 5' above base of section comes 1' zone containing Camarotoechia in abundance, large Spirifer & clams. These make 3' [illegible] before [illegible] in structure. 3' above Camarotoechia is a shaly layer abounding in Productella. At 337 a stromatolite bed. At 402 C. congregata & big Spirifer. Rocks from 387 — 473 are heavy bedded blue-gray fine grained ss.
473 — 498 dark shaly ss, nearly black
At 530 — large Spirifer
At 593 — section ends for interval
593 — 712 covered
712 — 748 — heavy bedded shaly ss. with Aviculopecten, P. [illegible], [illegible], Koniophora, K. emarginata

[redacted]

1600

748—792 Same
792—843 Rock changes to fine grained shaly ss. N34E 49° 30
843—895 — Section becomes heavy bedded ss. with layers up to 1' at 869 the layers are very massive. Section ends at 895.

0—593 — N5°E
593—895 — N15°E.

July 30 —

Vicinity of Phillipsport – Cut on N.Y.O.& W. between Summitville and Phillipsport. About 20' heavy bedded ss. with concretionary structure interbedded with reddish black shaly sandstone. One fossil only was seen. A *Spirifer* cf. *Sp. audaculus*. The beds are probably Hamilton. This cut is 1393 paces from Road & RR crossing. Cut 218 paces long.
218 — 508 covered
At 508 comes 15' lumpy, irregularly fracturing ss. M. [illegible]. N. arguta, P. lirata. These fossils come from uppermost ledge which actually may not be in place. These beds are exposed for 35 paces.

N30E 41°NW

1193
2
2386
597
2983

1601

543 — 1043 Covered.
1043 — 1143 limestones at base but blue gray thin bedded ss like 31
Ludlowville in upper 1/4.
Petrocrania, Camarotoechia, Ambocoelia
Cut about 10' high. These rocks are
evidently all Hamilton.

1143 — 1393.
Section continues from R.R bridge up-stream. From R.R. bridge to stream + highway crossing, rocks at base are olive with Grammysia. About 20 feet (thickness?) upstream appear large Spirifer granulosus?, G. alveata?, C. coronatus. N20E 40°NW. This section extends to road. Upstream for 90 paces the section is covered. Then comes about 5' of coarse ss. 230 paces upstream come thin-bedded x-bedded ss. At 260 exposure ends.
260 — 299 — covered
299 — 327 — ss + olive shale
327 — 402 — Comes a waterfalls. about 15' high. Between these intervals the rocks are mostly blue gray porous ss. with [illegible] plants, layers of concretions + ferruginous pebbles. The rocks suggest the post-Hamilton. They may be Hamilton but not of Hamilton facies.
402 — 438 — Covered
438 — 638 — These ss. continue

910
570
340

1200
.26

572
272
644

590
325

upstream with shaly
slight gaps between them.

1602

32

Jy 304 — Small outcrop beside road
0.75 miles SW of Wurtsboro.
Lumpy shales as with Naugatuck
Fulton & rocks exposed just
below Haven

Jy 305 — Exposures appear at base
of woods 100 paces west of Jy
long section. Dip & strike at
top of section N 41° E +1° NW.

340 = Summit 910
S. tullius 875 Actinodesma
J. carinatus 845
Base of fine bluish ss. 570
Total section 340'
To J. carinatus 275'
To S. tullius 305'
Dip and strike at bottom same as
top. Total section is 1200'
Mixed fine ss (Neocom) 250'
Neocomb would equal about 300'
from beginning of fine ss to
top of section

Total section
340

1602

33

July 31- Climbed up gully S branch of gully which flows between R.R. of Erie R.R. on Port Jervis sheet. Nothing in gully to or top of hill where gully heads. Area surrounded by 1000' contour all covered. Thin upper Storm-roller bed is at 920 or just 400' above the road, and is exposed on the south slope of hill facing Elbo Park. The Vitulina bed lies about south 30°-40° W of this exposure.

About 10' below upper Storm-roller were seen Tropidoleptus Sp. mucronatus ? a Sp. like Zellia. 355 above rd. Storm roller with Tropidoleptus

Jy 31- Collected at Vitulina bed and found large Centronella in it, definitely climbing the Portland Point Stage of the bed. Portland Point should include the Rhipidomella bed & then would be 3' thick.

Jy 31- Ledges about 20' above level of roadcut No. 2, platy to and shaly dark blue gray to. Tropidoleptus + Spirifer fultonia

[redacted]
1604

Jy 31³ At northeast end of road along reservoir, 8-10' shaly ss. & thin-bedded ss with upper 34
storm-roller zone or contorted bedding.

Sp. pennatus, T. carinatus, Cypricardella. All rocks along reservoir are fossiliferous & contain Hamilton forms.

Jy 31⁴ Section N30°W thru woods.
0-80- covered
At 80- 15-20' ledge x-bedded ss. with Tropidoleptus & Sp. of tullius. 80-93
93-164 covered
at 164 (40 feet above) lake ledge(s) of platy & contorted ss.
164-217- to top of first hill
217-411- to slope of hill across swamp (55' above lake) ledge of dark arenaceous shale. I believe this last ledge is near beginning of Post Hamilton

880' on Park map — Vitulina bed in park is at 870' by barometer. About 3' thick, not 6

August 1 1605

35

1.3 miles NW of intersection of 190 and 209 on 190 exposure in Pa highway 190, 60 pieces along hwy. Limpy, cleaved sandy mudstone containing Atrypa, Vitulina, Nyassa, Stemmed.

0.1 mile farther along (1.4) was seen a float block of coral bed probably not far out of place. A Pentagonia was taken from this piece.

Centerfield locality is 0.85 mile toward Stroudsburg from intersection of 190 + 90.

Along 90 toward creek + RR for 400 paces Ludlowville is exposed. At 400 L. laminosa was common, Portland Point should be not far above this.

612
~~209~~ Along Onondaga + Eggers exposed out of East Stroudsburg. On 209 Onondaga exposed north of Marshalls Clock. About 1/2 mile NE Echo Lake closely cleaved lower Marcellus is exposed. Here the cleavage surfaces weather

1606 [redacted]

Light colored and bedding
shows as horizontal lines. It
gives the exposure the appearance
of limestone. This exposure
suggests the lower Marcellus
about 1½ south of Port Jervis.
0.6 mi. farther on is top of
Onondaga dipping N52°E 15°NW
(compass set with 9° declination)
From here NE the road cuts more
& more into the Marcellus
which is well exposed in many
places. On N side road at
locality 1.1 mi. NE of Echo Lake
Marcellus is exposed making
Onondaga exposure to top.

Section on Raymond Kill
0.1 mi. East of Union school, 50
pace exposure with Leiorhynchus a,
Actinopteria, Leiopteria, Bembexia.
Rock is mudstone with much sand
Appears to be definitely Post Hamilton.
Exposures at 0.25 and and 3 but
no fossils seen.
At 0.6 last exposures of dark
post Hamilton mudstone appear.
Where road crosses Raymondskill
exposures 50 paces west of Kill
and up hill to east carry
Hamilton fossils: S. concava, Douvillina,
Gennaeocrinus, Elytha,

.2588
300

75'

Cypricardella bellistriata, *Grammysia arenata*, *Sp. granulosus*, *Sp. pennatus*. This interval suggests the Spirifer-Atrypa zone of the upper Moscow.

At 1.35 exposures become nearly continuous; at & near top were seen Spyroceras, Nyassa, Tropidoleptus, M. concentrica, Athyris (large), Nucleospira.

Pictures
On Panchro-pack
2 Vitulina bed.
2 Gully at Stroudsburg - vertical
1 Gully at Stroudsburg
3 Coral bed "
1 Marcellus "

Starfish bed in park 185' above intersection with (42, 97).

1608 [redacted]

Aug 2

Section along 42-97 just outside of Port Jervis. From cannon near base of cliff to NE about 20 paces mudstone is exposed which extends upward becoming harder and forming a hard ledge 100-120' above the street. This hard ledge is exposed again 300 paces NW of the cannon at the intersection of the river road and the new segment of 42, 97. which goes up hill N 85° W. Strike & dip on this lower ledge is N42E 12°NW
16 paces farther along is a low ledge of same hard lumpy ss with concretion layer at top. Then comes crumbly shaly ss.
16-101 finer shaly ss gradually becoming sandier to form here a moderately hard ledge. I would guess this interval to be about 100' stratig.

100' 101-251 — In last 50 paces rock becomes very massive & hard and forms a boss on S side of road exposing the much fractured upper beds. Here we saw *S. bisulcata* and

140' *N. arguta*. I think this is still in the Marcellus but probably near the top.

1609 [redacted]

15' 251-271 — Softer shalier rock for about 10' strat. with 6" layer of concretions on top. At this layer rock above becomes
10' flatter and breaks with flat pieces rather than small lumps
271-323 — Thin-bedded flat-breaking shaly ss. ends. No fossils seen
15' in it. Road bears N 55 W here
323-349 — massive heavy ledge very sandy
349-454 — dark shaly ss becoming bluer lighter & more massive upward. At top contains (25-50') contains large Spirifer + Rhipidomella. This is just opposite observation platform. Under platform were seen Rhipidomella, Leptostrophia, Spirifer.
15' This bed is capped by about 1' of limy ss. with Camarotoechia, large Athyris, Sp. mucronatus,
35' Leptostrophia, P. flabellum.
Here road goes N 80 W. Road 70' above intersect
454 — 523 Rock becomes more a series of ledges or layers going from [illegible] to [illegible], layers [illegible] thick. At 493 rocks have large Sp. This interval is a limy ss.
523-623 Rocks tend to break into smaller lumps. At 568 came crinoid stems, Nyassa.

Road goes N 80 W to City line

97.25

1610 [redacted]

At 595 and about 5' up 40
comes Ancyrocrinus, Aviculopecten [illegible]
large Spirifer, Sp. mucronatus,
90' Cup coral, Camarotoechia, P. flabellum
At top of interval ss. becomes
coarser + X-bedded + like Colgate
ss.
20' 623-646 — covered.
646-658 — hard lumpy blue gray
10' ss. with large Spirifer, crinoid
stems, Leptostrophia, Petrocrania
10 658-675 — covered.
20' 675-717 — lumpy ss with Aviculopecten
717-989 At 772 comes [illegible]
and Melocrinus. At end of
section about at 975 comes Pterinea
and Tropidoleptus. The rocks here
have been massive [illegible]
50' bedded platy ss. City line about 75
paces from end of section.

Collecting park roads —
Park entrance exactly 0.1 mile
from city line.
0-0.15 — first minor bend large
exposure. 30' exposure of mostly
4 layers of [illegible] Camarotoechia,
Tropidoleptus, Cantrainella bed 0.15 mi from entrance + 90' above entrance
0.3 to first major bend where
C. congregata occurs.
0.4 to starfish bed — 205' above entrance
0.55 to 2nd major bed.

aneroid set at 0 at intersection of river road + 42.97

From C. coronatus bed at first major bend we go down in the section to second major bend.

345' on map. 0.8 entrance to transient camp elevation 335 from intersection of River road & 42.

Between 0.3 & 0.55 we saw Camarotoechia, Tropidoleptus, Glypto. erectum, large Spirifer. Beds between 0.55 & 0.8
125 paces below entrance to transient camp comes Vitulina
at 325' which thus underlies the beds at the camp entrance.
Upper Vitulina bed comes at 385 or 810 ~~ft~~ elevation
At first main bend and about 100 paces up the road is a layer suggesting the C. tenella bed.

Aug. 2. Marcellus on 209 about 1 mile N of Port Jervis. Rock is a fine grained ss. strongly cleaved with strike of cleavage N 50° E and dips 60° S E. The exposure is 0.9 mile long. At second farmhouse rock is exposed toward the river 100 yards.

1612 [redacted]

August 3

42

Rose Point Glen - Elevation at start 560'
First rock seen at 618', thin-bedded ss.- splitting into plates 1/2" to 1" thick.
630 - Tropidoleptus abundant
670 - Sp. mucronatus, C. coronatus, Tropidoleptus, Nuculites, Parallelodon, Sp. f. tullius.
750 — 775 covered
820 — 835 - Ledge of stream-rolled coarse ss. enclosed by thin-bedded irregularly bedded sh. Fossils fairly common: large Leiopteria, Sp. like eastern mesacostalis, possibly like Sp. tullius, bellerophontids. These upper layers are probably post-Hamilton. At 840 Gully flattens and stream turns off to east or southeast. Crest of hill at 835 is formed by fossil ledge. and hill appears to be flat to west. Contouring must be wrong. Could not measure attitude here but dip is much flatter than at the point
At 805 - Tropidoleptus

Diplema

A 3' — X-bedded heavy-bedded ss containing S. tullius & Tropidoleptus

A35 — Slope & cliff on west side river opposite Spencer Bend

45' above river level; T. carinatus, D. arcuata, star-shaped crinoid stems, Sp. tullius

55' — Pebble bed with Tropidoleptus

63' — Vitulina, C. coronatus, P. auriculatus, Sp. tullius, A. erectum

65' — T. carinatus a

70 — T. carinatus, C. gregarius, Bumastus

This is probably beginning of post-Hamilton. The Hamilton thus ends at 510' in the cliff.

A34 - Thin-bedded ss with [illegible] roller zone of very thin ss at top.

Cut from Erie R.R. bridge at Millport to end is 0.7 mi. Strikes & dips N70E 12° NW; N80E 10° NW; N55E 8° NW; N65°E 9° NW.

Long section between Haven & W. Brookfield is 2.5 mi. NE of W. Brookfield and 0.9 mi. SW of Haven.

1614 [redacted] 44

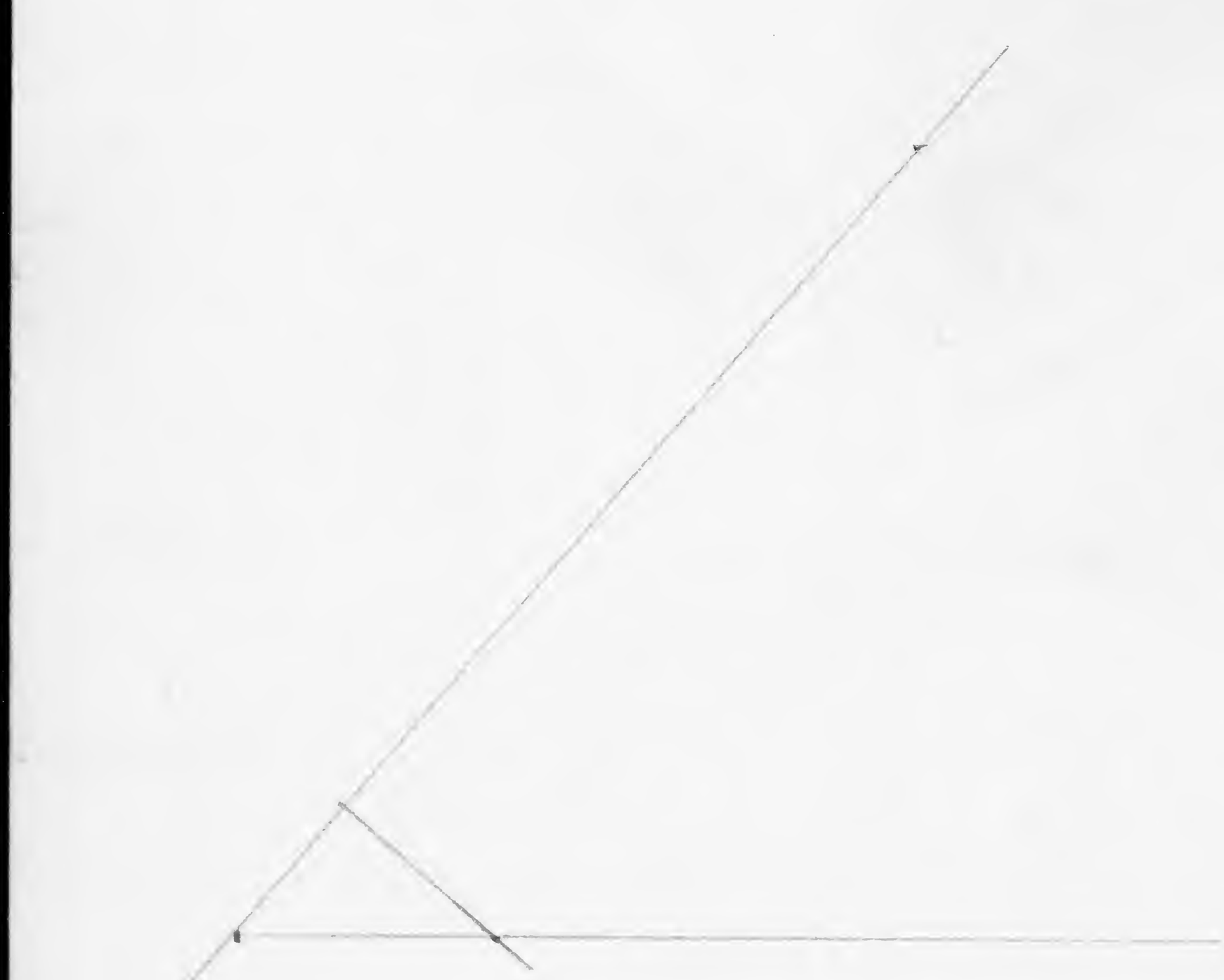
Aug. 4

A4 – ledges in Vernon Creek, head
ea. + slaty as. Nyassa at base
N30E 45°NW. Catskill type exposed
upstream

A4' – at power plant above bridge over
creek about 105' feet a thin layer or
lens containing Rhipidomyonella
in abundance. N35E 35°NW.
Magnificent section of rock
mostly of Catskill type.

Many exposures of Onondaga
along Rt. 209 between Huntley
and Otisville Ridge.

A5 – Marcellus exposure in hill
A5' – Onondaga (Upper)



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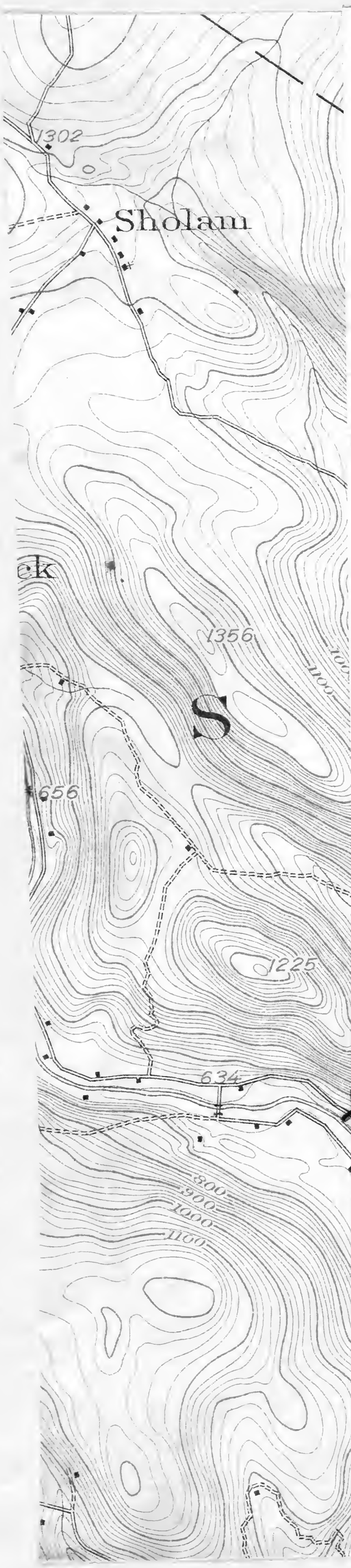

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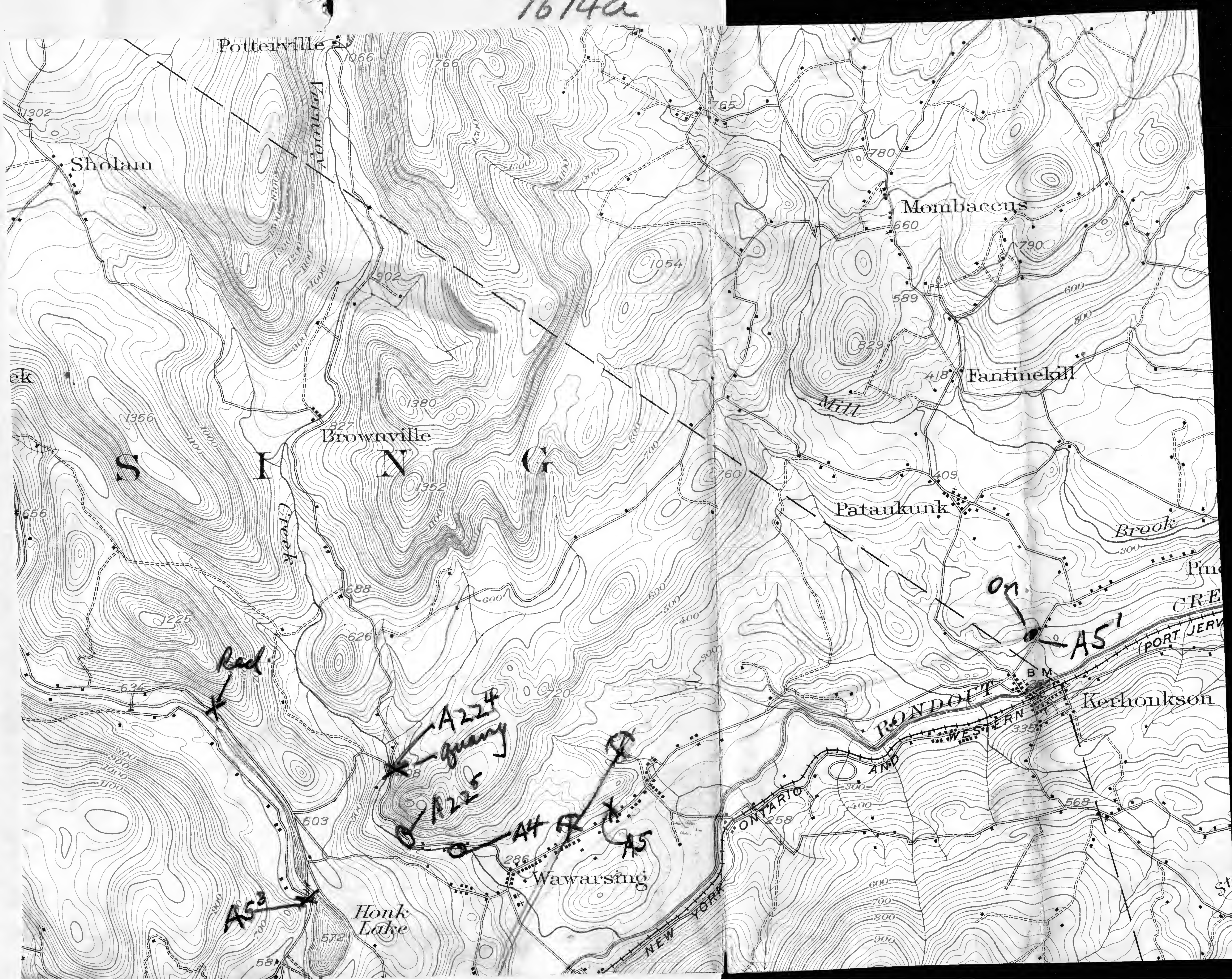


Potterville
Sholam
Mombaccus
Fantinekill
Mill
Brownville
S I N G
Creek
Pataukunk
Brook
Kerhonkson
BM
RONDOUT
ONTARIO AND WESTERN
NEW YORK
(PORT JERV
Wawarsing
Honk Lake
Red
A224
quarry
A225
A4
A5
A5'
A5³
On

1615 [redacted]

August 5 45

A5²-Rondout Creek at Napanoch and NW to Honk Lake.

First exposures appear about 180 paces upstream from bridge at about 290' elevation in stream. Here rock strikes N35°E 53°NW. Rock is blue gray shaly ss. + ss. rusted on the surface, mud cracked, ripple marked and with scattered storm-roller beds + pebble beds.

At 280 paces upstream same Paracyclas. In a pebble bed (330 paces from bridge came C. coronatus Sp. granulosus type, P. lirata,

Between 387 and 398 in a pebble bed were seen: C. gregaria, large Spirifer, N. oblongatus, Grammysia, P. flabellum, Paracyclas. All these occur with small pebbles, [illegible]

At 387 a storm-roller zone occurs

398-503 - ~~[illegible]~~ hard ss + storm-roller beds with beds containing small quartz pebbles up to size of 5-cent piece and larger pebbles of quartzite or ss. At 503 comes a bed of about 10' thick of greenish shaly ss.

503-578 - heavy bedded ss + shaly ss. to base of falls. Camerotoechia common. Falls about 20' high. Represents about 10 paces.

503-583 - Falls N34°E 52°NW.

1616 [redacted]

Bed of large Spirifers just under falls.

583-629 - Steeply dipping ss. with hackly fracture. At top. Cypricardella tenuistriata, P. flabellum, Grammysia large Spirifer 46
At 648 - N. arguta
At 667 — Along mill race and about 50' from gate sandy ledge and shaly ss. 10' above it teeming with fossils:
N. arguta, H. dekayi, P. flabellum, small Camarotoechia, large Spirifer, A. erectum, L. macrodontus Son, hamiltonensis. Many species could be collected here. This extends to 677.
677 — 817 — covered
817 - 857 — Coarse platy ss of Catskill type to base of 2nd falls. Above 2nd falls stream is choked with ledges.
857 — 942 — Catskill type of ss many plants. At top 10' bed hackly greenshale passing into black shale.
942 — 1052 same rock. This brings one to factory on side of stream. From factory to bridge over creek same rock is exposed. This is true also for 105 feet above the bridge on the west side of the creek.

1617 [redacted]

Just below the bridge
the course of the stream changes
from flowing down dip to nearly
parallel with strike. Stream
flows down dip nearly from
bridge to first falls. The
fossiliferous bed not far
above the first falls seems
about the same as the one
on Lemon Kill & Sandberg Creek
There are probably 3000' of Hamilton
rocks from Onondaga to Rhipido-
thyris bed.

$A5^{3}$ — Coarse ss. abounding in
plants
In bed of Rondout Creek Miss
S. recognized fragment of Gilboa
tree. I picked up Archaeopteris
that was not far out of places

$A5^{4}$ — On E east side road hard
dark shaly ss. with layers of
limonite concretions. On north
side road about 30' vertical
crumbly nearly black shaly
ss. N34°E, 55°NW

$A5^{5}$ small exposure by roadside
Cardiff type shaly ss. Spirifer
mucronatus, Leiorhynchus?

$A5^{6}$ — Hard closely cleaved Marcellus
with C. coronatus?

1618 [redacted] 48

AS7 — Had closely cleaved Marcellus low in formation

Log from Kerhonkson to Hurley.

N78E 15°NW	34.35	Kerhonkson 4 Corners on U.S. 209
	34.6	Onondaga North side rd. = AS1
	36.65	"
	37.35	"
	37.68	"
	39.5	Marcellus
	40.2	"
	40.4	"
	40.7	"
	41.3	Road right
	41.55	Onondaga
	42.2	
	42.7	Marcellus
	43.7	"
	43.8	Road left
	43.9	Marcellus
	44.4	High Falls Road. } Side trip to Onondaga
	46.25	" " " }
	47.1	Center of Stone Ridge
	47.8	Onondaga
	48.1	"
N73°E 7°NW	48.25	" Quarry, N side Road
	48.85	"
	49.0	"
	49.25	Road right
	49.75	Marbleton Creek
	50.3	Onondaga
	50.5	"
	50.6	"

50.9 Onondaga
~~50~~51.0 "
51.3-51.4 "
51.7 " (Creek)
52.3 "
52.7 Road right

August 6 A6

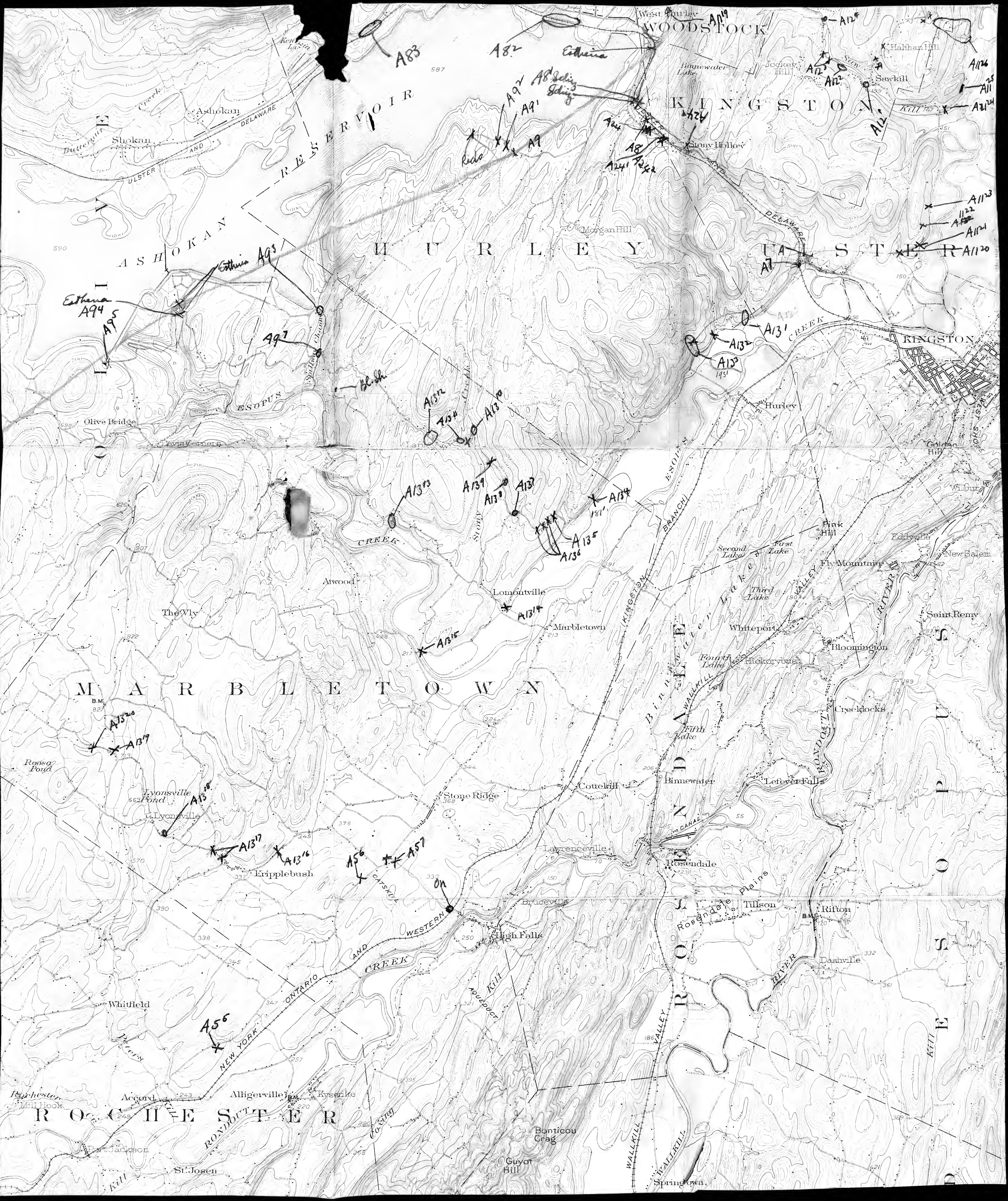
SE slope of Mt Marion, small pit in heavy bedded ss. Heat breaks into bowldoidal slabs from less than inch to several inches in thickness Fossils numerous. This ss is just under the edge of Mt Marion & forms a conspicuous ledge near the top.

Dewonaster Paraspirifer
Camarotoechia large Bembexia c
Leiopteria large
L. circularis

This bed is 320 feet above the road.

In afternoon we drove from Kerhonkson to Patanbunk, Fantinekill, Monbaccus & Tabasco. Rocks all heavily covered by drift. No bed-rock seen until Samsonville was reached. Gentle topography east of Napanoch due to debris dropped by glacier.

34.2
30.9
3.3



WOODSTOCK
West Hurley
KINGSTON
HURLEY
ULSTER
MARBLETOWN
ROCHESTER
ROSENDALE
ESOPUS
ASHOKAN RESERVOIR
ULSTER AND DELAWARE
Ashokan
Shokan
Butternut Creek
Olive Bridge
Davis Corners
ESOPUS
Binnewater Lake
Jockey Hill
Halihan Hill
Sawkill
Saw Kill
Stony Hollow
Morgan Hill
CREEK
Kingston
Hurley
Golden Hill
Wilbur
WEST SHORE
Pink Hill
Second Lake
First Lake
Third Lake
Fourth Lake
Fifth Lake
Binnewater Lakes
Eddyville
New Salem
Fly Mountain
Saint Remy
Whiteport
Bloomington
Hickorybush
Creeklocks
RONDOUT RIVER
VALLEY
WALLKILL
ESOPUS (KINGSTON BRANCH)
Atwood
The Vly
Lomontville
Marbletown
Stone Ridge
Cottekill
Binnewater
Lefever Falls
Lawrenceville
Rosendale
CANAL
Rosendale Plains
Tillson
Rifton
Dashville
Bruceville
High Falls
Roosa Pond
Lyonsville Pond
Lyonsville
Kripplebush
CATSKILL AQUEDUCT
NEW YORK ONTARIO AND WESTERN
CREEK
Whitfield
Peters Kill
Rochester
Mill Hook
Accord
Alligerville
Kyserike
Port Jackson
St. Josen
RONDOUT Kill
Coxing Kill
Bonticou Crag
Guyot Hill
Springtown
WALLKILL VALLEY
RIVER
Kill
B.M.
A83
A8²
Esthena
A8¹ Scliz
Scliz
A9²
A9¹
A9
Reds
A9³
Esthena
A9⁴
A9⁵
A9⁷
Bl. Sh.
A13¹²
A13¹¹
A13¹⁰
A11¹⁹
A12⁴
A12³
A12²
A12¹
A11²⁶
A11²⁵
A11²⁴
A24⁴
A24
A8
A24¹
A24²
A11²³
A11²²
A11²¹
A11²⁰
A7
A13¹
A13²
A13³
1931
A13¹³
A13⁹
A13⁸
A13⁷
A13⁴
181'
A13⁵
A13⁶
A13¹⁴
A13¹⁵
A13²⁰
A13¹⁹
A13¹⁸
A13¹⁷
A13¹⁶
A5⁶
A5⁷
On

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing the fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile), with a contour interval of 2, 5, or 10 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of $\frac{1}{625,000}$, or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of $\frac{1}{250,000}$, but about 4,000 square miles has been mapped on a scale of $\frac{1}{62,500}$.

About half of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff. [illegible] altitude form[illegible] their lower ends by a sea cliff. The hill at the left termi[illegible] ruptly at the valley in a steep scarp, from which it s[illegible] gradually away and forms an inclined table-land that is [illegible] ersed by a few shallow gullies. On the map each of [illegible] features is represented, directly beneath its position in [illegible] sketch, by contour lines.

The contour interval, or the vertical distance in feet bet[illegible] one contour and the next, is stated at the bottom of each [illegible] This interval differs according to the topography of the [illegible] mapped: in a flat country it may be as small as 1 foot; [illegible] mountainous region it may be as great as 250 feet. Ce[illegible] contour lines, every fourth or fifth one, are made heavier [illegible] the others and are accompanied by figures showing alti[illegible] The heights of many points—such as road corners, sum[illegible] surfaces of lakes, and bench marks—are also given on the [illegible] in figures, which show altitudes to the nearest foot only. [illegible] exact altitudes—those of bench marks—as well as the geo[illegible] coordinates of triangulation stations, are published in bul[illegible] issued by the Geological Survey.

Lettering and the works of man are shown in black. Bo[illegible] aries, such as those of a State, county, city, land grant, t[illegible] ship, or reservation, are shown by continuous or broken [illegible] of different kinds and weights. Metaled roads are show[illegible] double lines, one of which is accentuated. Other public [illegible] are shown by fine double lines, private and poor roa[illegible] dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, [illegible] prominent natural feature within it, and on the marg[illegible] map are printed the names of adjoining quadrang[illegible] ch maps have been published. Over 3,000 quadrang[illegible] United States have been surveyed, and maps of [illegible] the other side of this sheet have [illegible]

The topographic map is the base on which the geolog[illegible] [illegible] features of a quadrangle are represented, an[illegible] ps showing these features are bound together with a de[illegible] e text to form a folio of the Geologic Atlas of the U[illegible] tes. More than 200 folios have been published.

Index maps of each State and of Alaska and Hawaii sh[illegible] areas covered by topographic maps and geologic folios[illegible] hed by the United States Geological Survey may be ob[illegible] ree. Copies of the standard topographic maps may be ob[illegible] for 10 cents each; some special maps are sold at different p[illegible] A discount of 40 per cent is allowed on an order for [illegible] amounting to $5 or more at the retail price. The ge[illegible] folios are sold for 25 cents or more each, the price depe[illegible] on the size of the folio. A circular describing the folio[illegible] sent on request.

Applications for maps or folios should be accompani[illegible] sh, draft, or money order (not postage stamps) and sho[illegible] ldressed to

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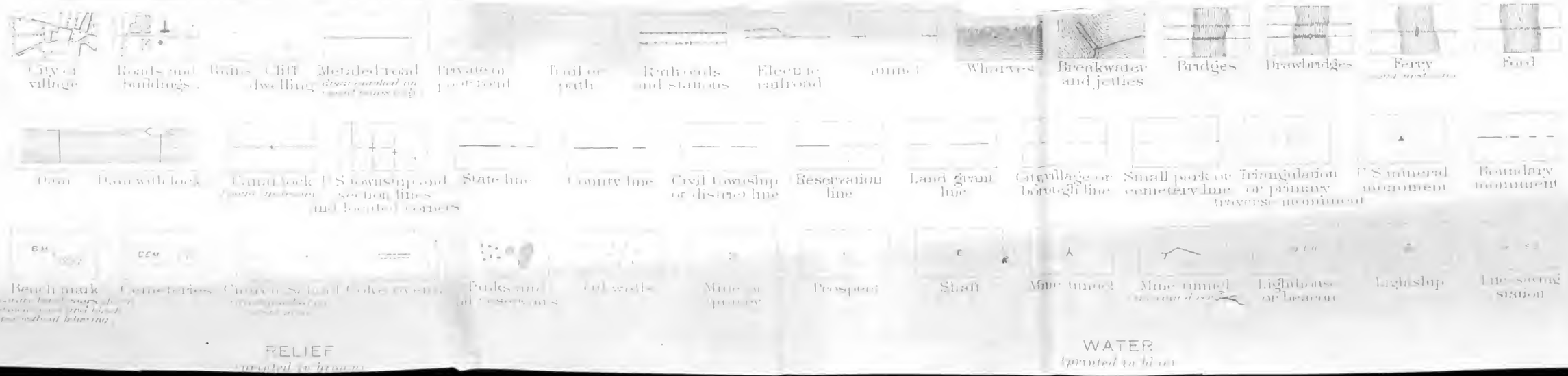
United States Geological Survey
Washington, D. C.

January, 1924.



1619a

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THE DIRECTOR,
United States Geological Survey,
Washington,

January, 1924.

1C20

August 7

50

Section along N.Y. 28 from Esopus River at Kingston to West Hurley

30.90 Esopus at Kingston

31.95 Covered in valley.

31.95 Cut 160 paces long exposing 25-30' of chumbly dark, nearly black shale that streaks brownish white near bottom but white at top. Ostracods, and Euomphaloid snails occur. This is the upper part of Chadwick Bakoven.

1.

Sep. 1677

32.2 55' of hard dark gray limy siltstone weathering light gray on short exposure but to a punky brown when leached. No fossils seen. Probably transitional to above. Cut is 37 paces long. Rock on weathering breaks into small pieces, somewhat blocky. Bedding shows as lines of different color and lines of solution on joints. N50°W 3°NE

2.

Accession 1 starfish from Alice Dunbar, Hurley, New York

32.35 150 paces much harder & fresher limy siltstone, about 35' high containing small corals & Crystopora near top. This is probably base of Mt. Marion.

3.

N60°W 8°NE

1C21 [redacted]

A7 – on RR behind house + 0.25 mile
from RR. bridge upper part of hard
basal Mt. Marion. Big side of R.R.
0.15 mi. from bridge about 35'
hard calcareous sandy rocks
with fossils. In lower part
a type of Spinosa type Amphi-
theca?, Orthis cyclas. In upper
part O. cyclas. About 15' up
a large Pavonka, the rock is
hard + fairly closely cleaved.
This undoubtedly belongs to the
hard lower Mt. Marion. About
0.2 mile from bridge is good
cut showing alternating hard
& softer beds 2 to 5' thick. A
band 3 ft below top contains
many pits suggesting places
where cup corals weathered out.
Dip about 5° NE. Cut ends at old
road over R.R. at A.
Back to road
32.60 Cut 160 paces long ends at
old road at A. Is same rock
as in R.R. Hard blue gray,
4. cleaved + irregularly fracturing.
Leiorhynchus occurs here.
N70°W 4°NE.
32.85 Crumbly nearly black sandy sh
streaking white, of Cardiff type
5 Cut 15' high about 0.1 mile long.

387 920
194 230
774 150
968

N54W 460p. 0.2
N74W 387p — 90' 0.2 1.9 129
N46°W 258p — 0.1 456
N25W 0.45mi. 375
N5°E 0.65 mi.
N25°W 0.2 mi
N60W 0.1 mi.

N54W 0.25
N74W 0.2

774
194
968

35.20
34.75
.45

33.70 From 32.95 it is covered except for shale chips in banks whole distance probably underlain by shale. 20' of dark blue gray crumbly sandy shale of Cardiff type containing Sp. mucronatus, small chonetes, orthocerids + Bucanopsis

6 Probably long covered interval is underlain by this shale. Modiolites triquetra.

34.2 Road into Stony Hollow (28A). New road goes N54W from turn to Stony Hollow for 460 paces, then N74W for 387 paces to 95' vert.

160

34.3 Hard massive blue gray shaly ss. 100 paces long. Paracyclas,

7 D bisulcata, Palaeoneilo.

203 34.45 10-15' hard heavy bedded blue gray ss. Tendency to conchoidal fracture + storm-rollers. This cut is 88 paces long. No

8. fossils seen in it.

387 34.60 3' conchoidally fracturing ss.

120 Road goes N46°W here for 258 paces.

9.

136

34.7 Cut 100 paces ~~long~~ ~~flat~~ moderately

10. heavy-bedded ss breaking into slabs vary from an inch to several inches in thickness. From end of this cut road goes N25W 0.45 mi.

1C23 [redacted]

On sw side of road strike is
N5°E 10° NW. Small storm- 53
rollers. These rocks suggests
beds below lower falls at Napanoch.
34.85 0.1 mile cut in dark blue
gray crumbly shaly ss. containing
byfall clams. P. lanceolata,
11 M. corbuliformis, O. parvula,
Paracyclas.

35.30 Cut about 150 paces long
consisting of 20' of heavy bedded
blue gray, coarse ss. with
12. softer layers of black shaly
stone and soft ss. Only plants
seen. Dip about 5°N 20 W. At end
35.35 of this cut road swings N5°E
for 0.65 mi. Lane crosses road
at end of this cut.
35.40 On lower part of cut about 4'
heavy-bedded ss. irregularly
13 bedded. This is overlain by 10'-15'
of purple weathered shaly ss
abounding in fossils:
Schizophoria c Lindstroemella
Schuchertella c
10' Nyassa arguta c
The uppermost bed of the
ss abounds in Paraspirifer
Schizophoria / Paraspirifer acuminatus, & Sp. arkonensis
4' Cut 150 paces long

35.55
–35.8 about 35' of heavy-bedded
14 x-bedded ss. at lower part of section. Pebble bed about 25' above base. About 15' lens of green shaly material. N 65° E 40° NW At top of this section comes 6' dark shale turning to green 35' above bottom of section along road comes a 6' bed of knotty greenish concretionary ss.

35.85–36.0 About 15' heavy-bedded x-bedded
15 ss. with plant fs. Catskill type.

36.05–36.10 At this point road goes N 25 W for 0.2 mi. Then N 60 W for 0.1 mile and forms the main St. of W. Hurley
16 Same x-bedded ss as 15.

1580
2
3160
790
3950

.75
5280) 3950
3960
2500

730
2
1460
385
1845

1625

August 8

S 3

1045 feet from R.R. bridge on east side of west Hurley on lens of black shale 2½-4' thick with Eathenia.

At 1338' comes another Eathenia bed. RR cut ends at 3950'.

A8— RR cut just NE of Catholic church and just E. of bridge over lane. At E. end cut is about 10' high & extends 160 paces west to bridge. Consists of dark flaky shaly so & a few heavy beds of ss. The east end of this cut 1825' from the east end of the long cut.

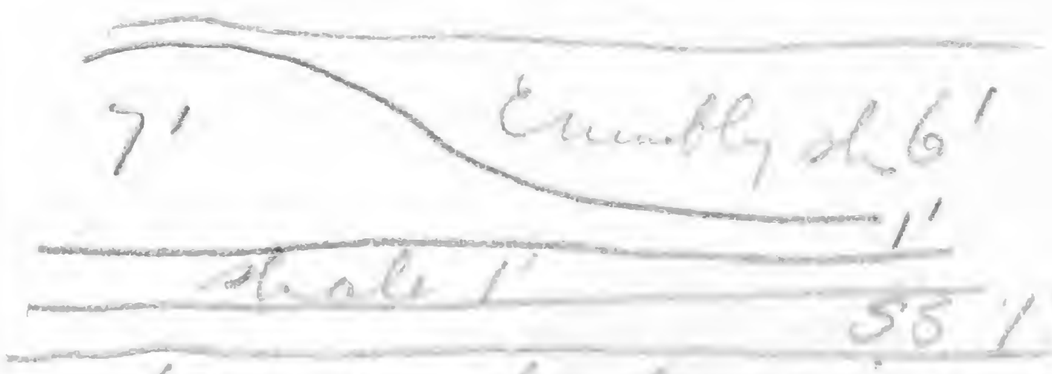
On new road lane crosses new road and leads to ~~house~~ solitary house. Schizoplusia bed lies 0.1 mile north of this lane and where new highway turns N5°E.

A8' — S 45° E

Schizoplusia bed discovered on land opposite end of long RR cut. Putting the bed at about the 500' contour between the RR cut & the new road. Below the Schizoplusia bed

which is about 9" thick + 56
9" of so below with Paraspira,
Here is a great display of
platy sandstone covering the
flat from RR bridge NW to
New road along the lane.

Long RR. cut
East end + work N.
5' of crumbly greenish shale
overlain by 6' layer of heavy bedded
quartzitic ss. At 56 paces heavy
layer at track level. Followed by
9" shaly bed 2½' heavy ss., 3' crumbly
bed and then by 2' heavy ss. At 123
paces upper bed at track level.
Then dries about 5' shale, dark
crumbly which goes under at
190. Here is following section



black shale going under at 190

At 222 shales disappear + ss comes
in by wedging About 70.
At 350 paces 10' ledge at track level
followed by oliviaceous beds which
disappear at 463
At 600 cut is 30' high with many
dark shales.
At 819 to 1130' ss at

RR level. + 20' shale dark comes in. At 870 shale passes laterally into ss. From here to 1080 on W side tracks dark shaly ss + ss lens in and out continuously. It would be impossible to make a section. Cut here about 30' high. Lowest Estheria bed is 5' above tracks at 1080.

1147 lowest Estheria goes under. Was 6-7' thick at thickest. About 12' of ss above 1st Estheria comes thin edge of second Estheria lens here about 6" thick. At 1185 2nd Estheria bed is 7' thick. At 1220 ~~cut out~~ 2nd Estheria bed thins out.

At 1366 about 5' above tracks is 5' of olive shale with Estheria. This bed disappears at 1428 paces. Cut ends at 1568. Bridge at 1650.

In West Hurley 1/2 mile East of Woodstock road is crumbly green beds. 0.05 mi East of Woodstock road small cut in olive shale + ss.

1628

A8⁷

RR Cut ½ mile West of Woodstock Road in West Hurley.

58

Eastend cut 15' heavy bedded green gray ss., X-bedded. Thin bed is at track level in 164 paces. Above it are 2' mottled green & red crumbly shale followed by 7' crumbly green rock, & 10' X-bedded ss.

At 219 paces top of green shale is a RR level.

At 307 paces 10' (probably 15' ss is at track level. This is overlain by 20± of red crumbly shale. Dip is about 6° N50W. The RR track goes about down dip.

At 477 paces the 20' of red beds is at track level with the 8' green beds above them 2' ss, 10' green beds and a ledge of 10-15' ss forming top of cut.

At 577 paces all colored shales at track level & base of ss here 20' thick.

At 717 thick as at track level and capped by 5' ~~ss~~ red shale. Cut ends.

A8³ - RR cut in 10' red & green shale

1629 [redacted]

59

A8⁴ Went up road to Ohaya (Old) Mtn. Good exposures at summit but only of reds & greens and green coarse ss. Saw no fossils other than plants

August 9.

dark sh 6' fossils
1' Green ss 3-4'
sh ?

Small quarry in continental beds. In a black shale just above road level came small clams, ostracods & Estheria.

A9¹ — Dy in 25' green shaly ss. & dark sh. no fossils seen. Runs up to bend in Road.

A9² — X-bedded ss.

A9³ — Spillway channel floored by red & green mottled sandy sh. & ss. and ss. About 1/00 yds below bridge rocks dip sharply with strong dip to SW. Rocks at bridge dip about 45 SW.

1630 [redacted]

A9+ — Section along branch of Esopus Creek — 60

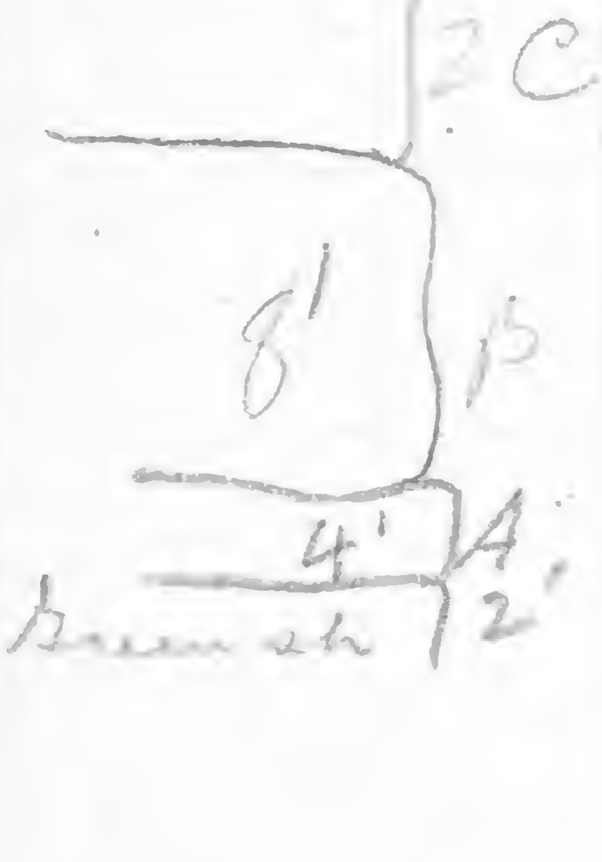
A — Dark sandy sh. with Archaeopteris passing into xbedded ss. 4'

B — Mottled red & green sh. — 8'

C. Upper bed of mottled red & green Thickness.

The section is covered for about 20'. 60' above entrance at about ~~475~~ or at 480 comes dark shales with *Estheria*. Below the Estheria are 15-20' of dark sh & green & red beds. The Estheria bed overlies about 6" hard ss.

15' above the Estheria bed comes another at 495' just a little below the bridge Probably Chadwick's Oak Hill bed These shales are sandwiched in between greens. Beds dip toward lake to NW



A9[5] small exposure crumbly green sh. + olive bad shale. 61

A9[6] — bright reds + bright Green shale + ss.

A9[7] Spillway channel, great bed, 20'+, X-bedded with plants + limonite concretions. Base rests on 5' bed green shale and dips 5° N80W. Upstream dip steepens to 11° N45W. Ss. overlaid by crumbly green shale 2' and 5' olive dark shale.
More sandstones appear downstream from bridge
Excellent locality for study of ss.

Went from dam just above Olive Bridge to Brodhead, West Shokan and end of lake around to Boiceville and Shokan. Only one good exposure seen + this was of reds and greens. Drove from Shokan to Lomontville. From Spillway channel for about 1½ mi. X-bedded ss are prominent in and beside the road. They then give way to softer rock very poorly exposed which is undoubtedly Hamilton.

A10 - Red, green shales, 2 heavy beds x-bedded ss. Upper one at intersection 62

A10' - dark green and green shale + shaly ss. in small pit 3-4'. N17E 6½ NW.

A10² on hill about 20' heavy-bedded ss including dark shales at bottom + top. Some shale is dark green

A8⁴ - revisited At 1105' on Olive Mt. in a quarry at roadside in red beds is a 4" band calcareous band with fish-plates + ostracods. Dip component ≠ 2° N84W. Cliff on S side Olive Mt. about 100' above saddle.

A10³ - Overlying X-bedded ss., about 10' badly mottled shale, and olive sandy shale.

10⁴ Roadside exposures of x bedded ss. dark olive shale + badly mottled reds + greens. No fossils other than plants.

A10⁴ᴬ Dark sandy shales with plants dipping west Strike N40E 5° NW.

1633 [redacted]

Send Mr. Zimm *Parazyga hirsuta*

63

Coral ledge in Mt Marion on east side bridge. Find out about U.S. map for Mr. Zimm. Ask Mrs Zimm for a *Charionella*

A10[5] Cut 300 paces long. At base green gray and nearly black shales in 2 beds 2 1/2' thick separated by a sandstone 8" thick. Then follow dark shaly ss & X-bedded ss. about 30' thick in a quarry 1/2 the length of the cut. From red shale bed *Estheria* was taken

N33E 10°NW

1634

64

A11 — Outlet of lake - 25-30'
X-bedded gritish ss.

A11' — 15' X-bedded ss.

A11² — 8' X-bedded ss with
plants. All 3 exposures of
Echolam type.

A11³ — 6-7' dark smooth shales
overlain by 12' X-bedded ss
as with plants.

A11⁴ — lowest reds.
A11⁵ — Reds.
A11⁶ — Reds in stream bed Dip N25°W3°
above stream 0.1 mi at elev 5en
Still lens of X-bedded ss.
A11⁷ — X bedded ss.

A11⁸ — 5' dark fine-grained ss. with
shaly cleavage + turning dark red
on exposure, overlain by 4' crumbly
reds.

A11⁹ — dark shale (olive 2') overlain
by X bedded ss. 5'

A11¹⁰ — X-bedded ss. 5'

A11¹¹ — Reds capped by X bedded ss

65.

A 11[12] — Reds

A 11[13] — X bedded ss in Law-Kill dipping N W.

A 11[14] — 6' mottled red & green shale overlain by 10' X-bedded ss.

A 11[15] — Quarry in 15 - 20' X bedded ss with Eospirifer ?opletus

A 11[16] — 10' red & green mottled shale overlain by 15' X-bedded ss.

A 11[17] — About 20' red & green beds N50E 10°NW.

A 11[18] — 6' dark & green shales with Estheria & Ostracods. 0.8 mile from junction with.

A 11[19] & Sapstone Qy 5' X-bedded ss Sandstones well exposed along Road from West Henley S for about 3/4 mile.

A 11[20] hard calcareous rock of Lower Mt. Marion 25' vertical S87W5°N

A 11[21] — hard shaly ss. crumbling to dark clays with hard layers one of which contains Schizophoria dip here seems to be forward road

A11[22] Small cut in hillside 70' down wood. Dark gray shale weathering light gray & containing L. limitare

A11[23] blocky shale dark, crumbly ss with Stylolites

A11[24] — 30' cut in dark gray crumbly ~~clay~~ sandy shale with N. fragile S. fissurella

A11[25] — soft crumbly sandy shale separated by seam of hard ss about 6" thick. N35°E6°NW. Small concretions size of egg.

A11[26] — section up Haliken Hill
Lowest 5' in soft gray shale
Then comes a 2' bed of fine, basal olive shale containing Lp. undatus, E. fimbriata, Atrypa, Dyscrolis etc. This may be same zone as top of Beene but attenuated. Above this are soft shaly rocks for 7'
205-220 Covered
220-225 — soft shale with fairly numerous
225-225½ — harder sandy layer with Lp. ~~undatus~~ Atrypina Sp. undatus,
225½-240 — Lime dark gray shale with small concretions abundant at top. Brachiopods

190'
Elevation of top of hill among bare. Hill hill is 30' too high. ~~Add 30'~~
Spread 30' into section

1637 [redacted] 67

240-260 — Covered
260-290 — shaly ss. becoming coarser & finer. At 290 is a 6" layer containing Sp. granulosa? type of large Sp., Athyris, M. concentrica. Above this are about 20' alternating shaly soft ss. & hard flaggy ss in layers 6" to a foot thick. This is followed by about 10' of irregularly bedded ss. 310 comes Sp. undulatus? At 320 comes the harder coarser upper beds to the level of the road. No fossils in these.
N5°E 5½°NW

290-320 — section above
320-330 — heavy, massive blue gray ss with storm-roller structure. These are overlain by 5' of shalier darker ss.
330-335 — darker ss. overlying heavy bedded ss mentioned above. Nucula & Nuculites at top.
335-340 — covered
340-347 — dark crumbly shales interbedded with coarse blue gray ss. At top N. arguta, T. aspidium, T. carinatus, C. coronatus, Sp. granulosus, Leiopteria, M. concentrica
347-370 — crumbly shaly ss with thin ss. bands.
A ss ledge 6" thick at 360 and filled with coronatus gone N 23°E 5°NW

At 360 a thin ss with
Sp. mucronatus, T. carinatus At 370
comes E. coronatus + large Camarotoechia
370–380 – covered and Paracyclas
380 – Comes heavy ss ledge opposite
first house. Plant fragments

X-bedded ss. at top of hill
opposite house on N side road.

About 150 paces east of road
intersection about 6' irregularly
bedded, contorted ss breaking into
thin plates. This becomes heavier
bedded down slope to turn just
east of third house on S side
road.

Quarry located 100 paces W
of 3rd house on S side road.
Quarry consists of a heavy 4'
ledge at base with alternating
shaly thin sands + heavier bedded
ss. The upper ss. split into very
thin plates + are dark + shaly.
Fossils in dump:
E. circularis

At 76 paces farther west is a
5' ledge of heavy bedded ss.
200 paces farther west a 10'
massive ledge.

August 12

A12

SWest slope Holihan Hill

At 255' about 8' crumbly dark ss. passing into harder & heavier-bedded ss. with a 2' storm roller bed at top. No fossils seen

263-275- covered

275—281— fairly heavy bedded blue gray ss. in layers 3" thick passing into shalier rock at top. Taonurus,

281-295- covered

295-305

Shaly gray ss. N51E 3°NW. passing upward into storm-roller beds.

At 345 Quarry in shaly ss with heavy storm rollers + lenses of ss. Quarry about 15' high

304-400 mostly covered. 3' storm-roller bed just under 400.

100 paces N of first road east 15' X bedded ss. and continues as a ridge for 200 paces. At about 300 -350 paces comes a borrowing pit in shaly ss.

A12' — Irregularly bedded dark shaly ss. dipping upstream about 15°. Without fossils. Probably corresponds to similar nearly barren beds in the vicinity of Stony Hollow. Stream goes

1640 [redacted]

About up the dip here

A 12^2 — long cut in blue dark gray sandstones containing Paracyclas. The shaly ss. are about 7' thick and are followed by about 3' storm-roller. Just below the storm-roller a loose piece of hard ss. had C. cornutus, large Camarotoechia. The piece is very fresh but may not be from this ledge.

A 12^3 — Moderately heavy-bedded blue gray ss.

A 12^4 — Heavy bedded ss. in stream forming rapids. Large pebbles 1½"

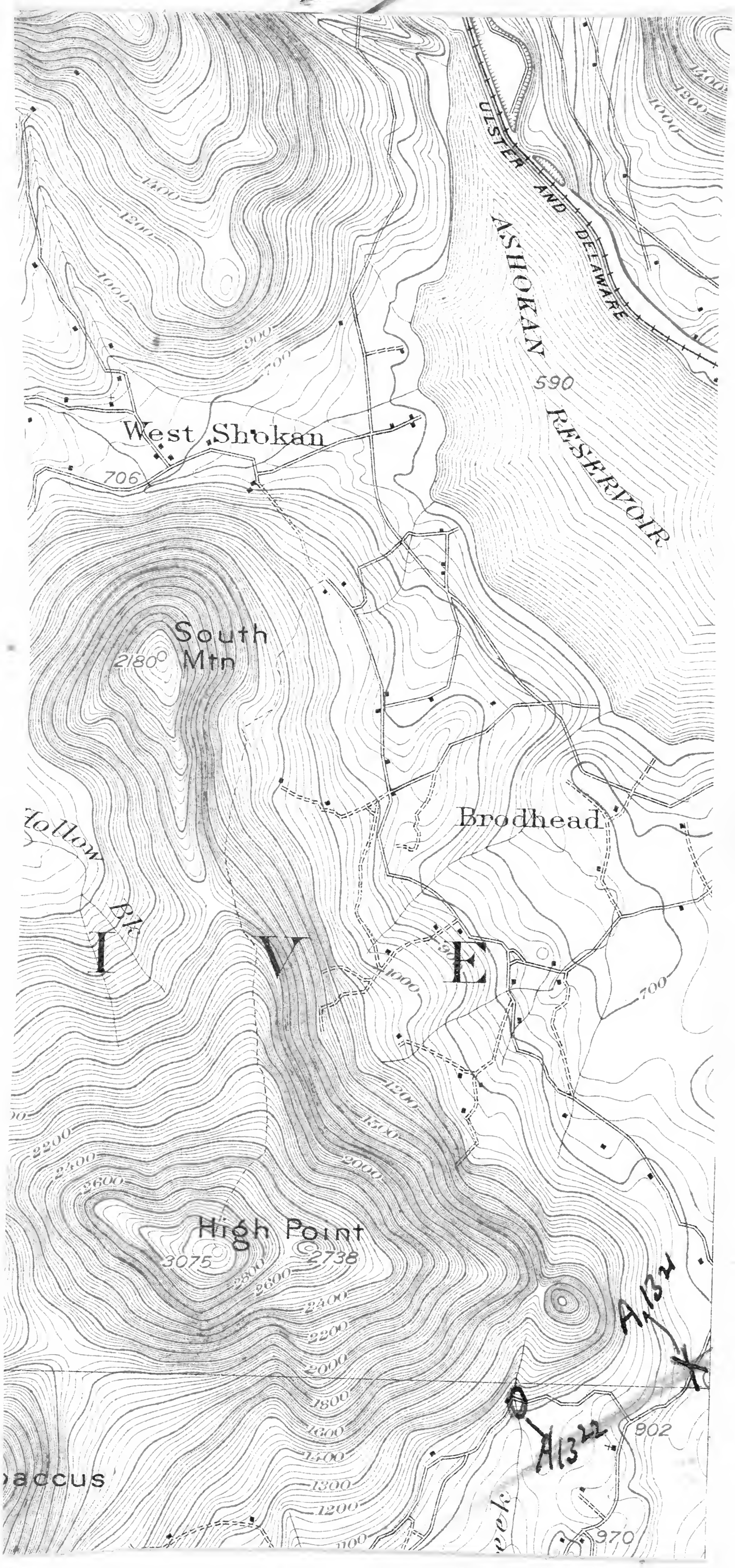
A 12^5 — x-bedded, heavy bedded ss & shaly ss.

A 12^6 — on roadside knotty beds followed by olive shales and heavy bedded ss. exposed on roadside and in quarry.

A 12^7 — dark shale & shaly ss.

A 12^8 — 50 yds downstream in a hard layer about 1' thick come [illegible] corals, possibly representing top of Berne! Same bed as at base of Halihan hill section A 11^{26}

[redacted]


ULSTER AND DELAWARE
ASHOKAN 590 RESERVOIR
1400
1200
1000
900
700
West Shokan
706
South Mtn
2180
Brodhead
Hollow
Pk
I
V
E
1000
700
1200
1500
2000
2200
2400
2600
High Point
3075
2738
2800
2600
2400
2200
2000
1800
1600
1400
1300
1200
1100
A 13 24
A 13 22
902
970
eek
accus

Coral bed culminates in a zone
of mixing. (Sp. audaculus) Some 30' above the
coral comes another layer
abounding in Sp. audaculus.
At Bridge are about 75' of soft
sandy dark shales with thin
hard ss layers. These are
same as those seen obse
slope of Halihan Hill. N15E 4½ NW.
~~S~~

$A12^{9}$— Large flagstone quarry. Rocks
become progressively harder to
west. This zone must be near
beds from top of Mt. Marion

$A12^{10}$— hard beds of lower Mt. Marion
same as exposed in cut just outside
of Kingston. This bed is about 150'
This also appears at intersection
of road at Mt. Marion N10°E 11° NW
Measured at Dam.

$A12^{11}$— Small cut in sandy sh. Sp.
mucronatus, Sp. audaculus,
P. flabellum.

$A12^{12}$— cut in soft sandy crumbly
shale with Sp. mucronatus.

$A12^{13}$— Soft crumbly sandy shale
above hard beds. About 30' high

$A12^{14}$— Hard closely cleaved Lower
Mt. Marion. Cleavage strikes

0.4

1642 [redacted] 72

A12[15]
A12[14]

N25°E 75°SE. Fossils
A. apinosa, fine-lined Atypa, Productella
Schizophoria, Dalmanella, Pentamerella
new. This is same bed as A11[4] and
what was called Leiorhynchus at that
place is the small Pentamerella
From this exp A12[13] can be seen
due west across the valley. This
is probably near the top of the
land layer. These land beds
dip [redacted] 8½° N 75°W. This land
layer probably should have a
ridge as it extends from
Catskill to Pennsylvania. A
bluff. The beds just W. of Catskill
also belong to this layer.

[redacted]

1000'

Gas 5 gal. - 0.93
August 13

A13 - Beside bridge (south) over RR section of 25' of hard cleaved calcareous rock of lower Mt. Marion with small corals + Ceratopora. Great blocks + slabs of rock drop off cleavage surfaces. There must be 3 or 400 feet of this rock exposed here. This is a good location for a type section.

In the RR cut just below the bridge the rock becomes softer ~~+~~ but still holds the strong cleavage. N70E 13°NW. These rocks are exposed for some 0.2 mile.

A13[1] — Waterfalls over 45-65' hard rock. N53°E 4½ NW

A13[2] — Hard beds dipping 8° N45°W 0.2 mile from ~~[illegible]~~ A13[2] cliff showing excellent weathered surface. — Picture

A13[3] — Top of hard bed at 145 feet over valley road + N78W 4°NW putting top at 320'. Makes thickness at least 200'

A13[4] — 40' cliffs in hard bed dipping 3½° N25°W. Picture
Excellent cut for 0.2 mile

A 13^5 – top of hard bed

A 13^6 – soft sandy sh.

A 13^7 – About 20' soft sandy concretionary shale with Nuculites, Sp. mucronatus, Sp. audaculus, small Chonetes.

A 13^8 – firm, lumpy shaly ss. no fossils

A 13^9 – 10' Crumbly dark shaly ss. of Cardiff type

A 13^{10} – lumpy, hard, heavy bedded shaly ss. with P. liriata! Includes waterfalls over same rocks.

A 13^{11} – Ascent into Zepla shows ss + storm-roller beds.

A 13^{12} – Rocks become increasingly sand to end of Settlement of Zepla where there are big flagstone quarries

A 13^{13} large high falls over ss same as A 13^{10}. N 40° E 6° NW.

A 13^{14} – Mt. Marion hard bed
A 13^{15} – " " " "
A 13^{16} – " " " "
A 13^{17} " " " "
A 13^{18} – 10–15' soft crumbly sandy shale

A13^{19} – Dark & greenish sh & knotty ss. capped by a bed of ss 2' thick with Tentaculites, Sp. mucronatus, T. carinatus. The dip is 6° N 7° E.

A13^{20} – Small quarry in 20' smooth fine-grained heavy bedded ss. overlain on road [illegible] house by 5' X-bedded ss.

A13^{21} – About 3 miles NE. of Sansonville quarry with large dumps. Black sandy rock in dump contains Estheria. Qy about 15' high with much black shale & containing X-bedded ss.

A13^{22} – X-bedded ss about 30' in glen. Dark shale & greenbeds by side of road 10'.

Drove road from Sansonville around base of Mts. to Mombaccus. Saw no good exposures.

1645

...t, irrigation, or reclamation of swamp areas—are made with ...ient accuracy to be used in the publication of maps on a ... of $\frac{1}{31,680}$ (1 inch = one-half mile), with a contour interval of ..., or 10 feet.

... Surveys of areas in which there are problems of average ...lic importance, such as most of the basin of the Mississippi ... its tributaries, are made with sufficient accuracy to be used ...he publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly ...ile), with a contour interval of 10 to 25 feet.

... Surveys of areas in which the problems are of minor ...lic importance, such as much of the mountain or desert ...on of Arizona or New Mexico, are made with sufficient ...racy to be used in the publication of maps on a scale of ... (1 inch = nearly 2 miles), with a contour interval of 25 to ... feet.

... topographic survey of Alaska has been in progress since ...8, and nearly 43 per cent of its area has now been mapped. ...out 10 per cent of the Territory has been covered by recon-...ssance maps on a scale of $\frac{1}{625,000}$, or about 10 miles to an ...h. Most of the remaining area surveyed in Alaska has ...n mapped on a scale of $\frac{1}{250,000}$, but about 4,000 square miles ... been mapped on a scale of $\frac{1}{62,500}$ or larger.

...he Hawaiian Islands, with the exception of the small ...ds at the western end of the group, have been surveyed, ... the resulting maps are published on a scale of $\frac{1}{62,500}$.

...he features shown on these maps may be arranged in three ...ups—(1) water, including seas, lakes, rivers, canals, swamps, ... other bodies of water; (2) relief, including mountains, ..., valleys, and other features of the land surface; (3) culture

E T T

C A I R O

T E N E R

S T O C K

H U R L E Y

G R E E N E C O.

U L S T E R C O.

U L S T E R

S A U G E R T I E S

K I N G S T O N

East Kill

Parker Mt.

Star Rock

2515

Outeora Park

Tannersville

Haines Falls

Goose berry Creek

Clum Hill

Twilight Park

Santa Cruz Ravine

Kaaterskill Creek

Kaaterskill Clove

Wilcox Ravine

Hillyer Ravine

Roundtop Mt.

High Peak

Stoppel Pt.

Winter Clove

North Mt.

Sleepy Hollow

Kaaterskill Falls

South Lake

North Lake

Mountain House

Sauer Kraut Mt.

Kaaterskill

Palenville

Otis Elevating R.R.

Catskill Mtn. R.R.

Elka Park

Schoharie Kill

Roaring Brook

Mink Hollow

Sugarloaf Mt.

Twin Mt.

Indian Head Mt.

Platt Clove P.O.

Platte kill

Platte kill Creek

Clove

West Sangerties

Platte kill Mt.

Echo Lake

Saw Kill

Overlook Mt.

Meads

Shady

Bearsville

Woodstock

Ohio Mt.

Esopus Creek

Platte kill Creek

Palenville

Fish Creek

Union Ville

Ruby P.O.

Dutch Settlement

Esopus

Tillemans

BOUNDARY LINE

ULSTER AND DELAWARE

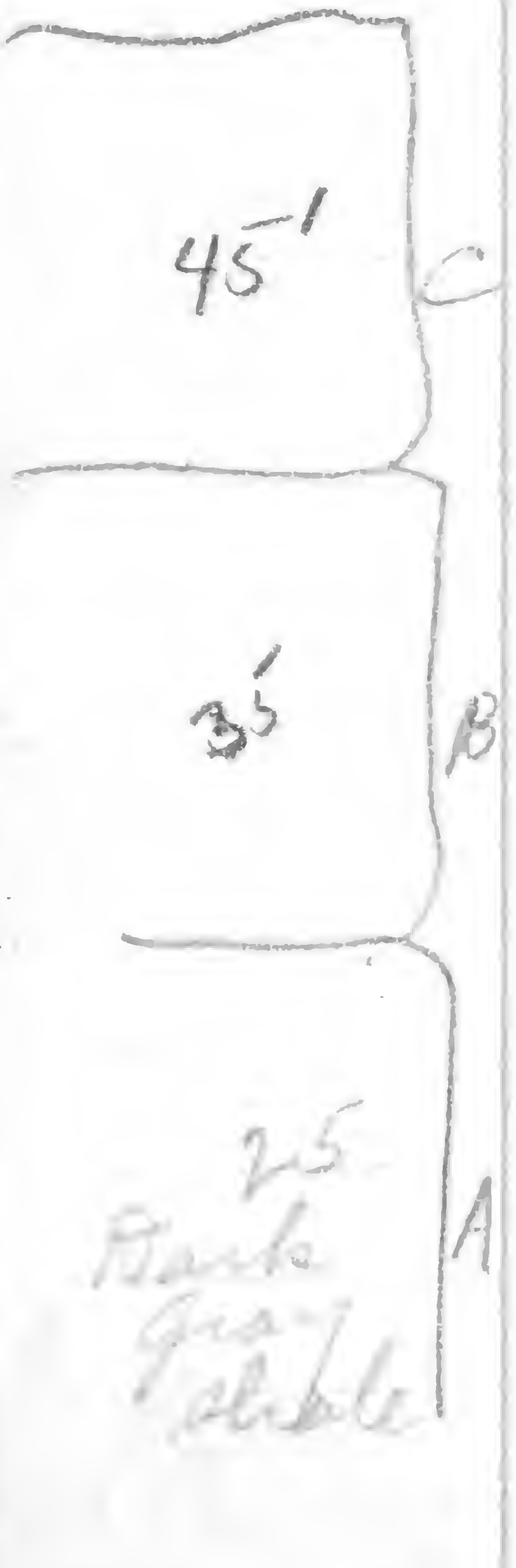
THE TOPOGRAPHIC MAPS OF THE UNITE

August 14

Large cut in lumpy sandy shale with concretionary structure. Contains a number of thin 6" ss. beds. N22E 11° NW.
Ambocoelia, Athyris, Nyassa, Palaeoneilo, Sp. mucronatus, Chonetes

A14¹ — 4' lumpy shale followed by quartz pebble bed 3" thick followed by 1' heavy bed ss. With pebbles + just above them are Camarotoechia, Pterinea Sp. mucronatus.

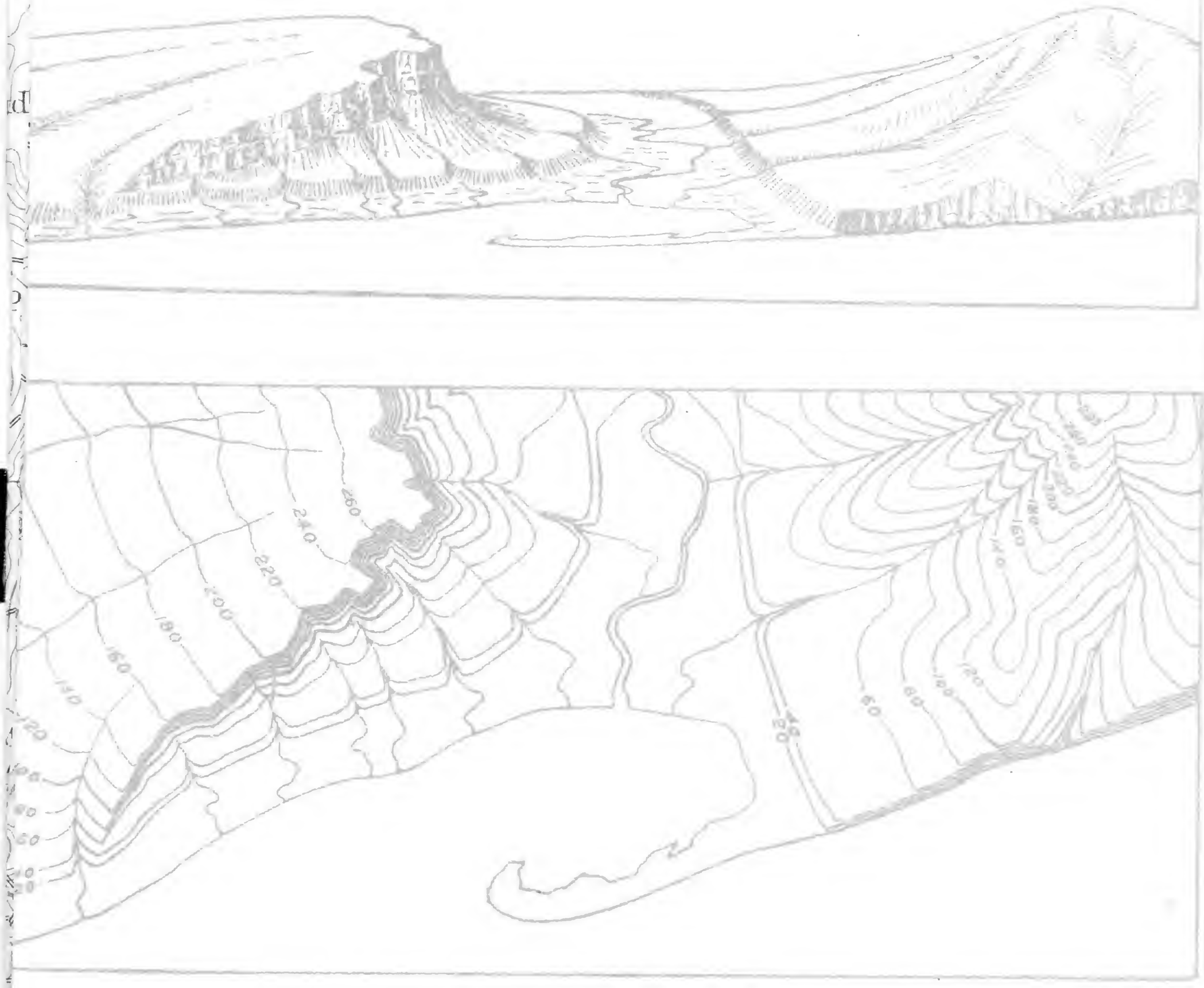
A14² - Wesley Hauck farm - Old Coal Mine.



A — Some 25' hard dark gray shale much deformed + slickensided in bed of stream at contact with B. Shaft for coal sunk into slickenside material.

B.— 35' feet, hard shaly sandy rock, heavy bedded rock, flat bedded, platy, not greatly cleaved. This is beginning of hard layer dip is 9° N55° W.

ad grade is shown in the figure below.



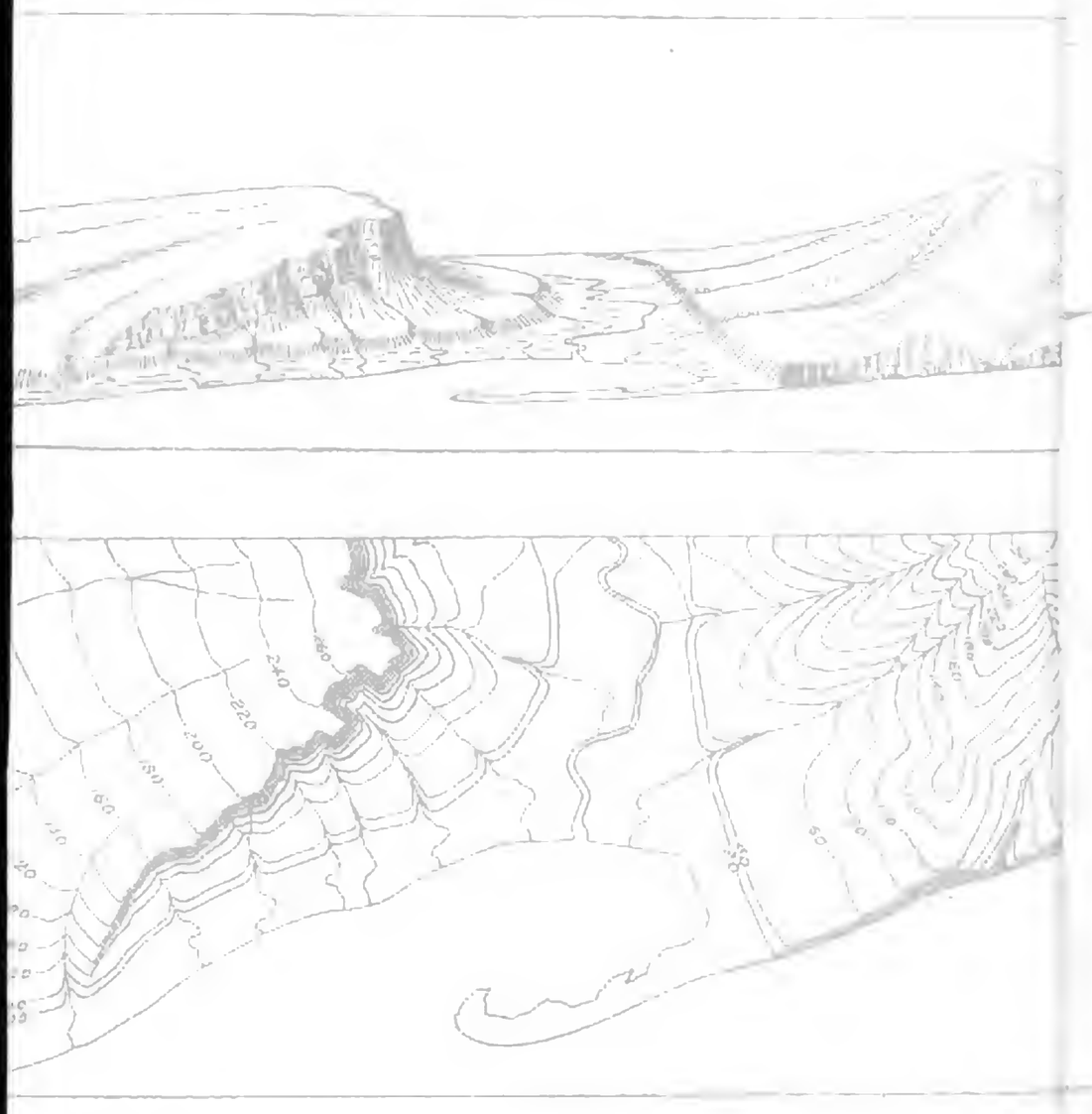
The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently slop-


Vedder Hill
Lawrenceville
Kiskatom Flats
Kiskatom Brook
Kiskatom
Belfast Mills
Catskill
Quarry Hill
Hamburg
Rogers Id.
Greendale Catskill Station P.O.
Oak Hill Landing
Burden Dock
Linlithgo
Green Pt.
Inbocht Bay
Kalkberg
Mineral Spring Brook
Timmerman Hill
Kaaterskill Creek
Great Falls
Saxton
Dewitt Pt.
Duck Cove
Aken
North Germantown
Germantown
Asbury
Smith Landing
Wanton Id.
West Camp
Cheviot
Quarryville
Mount Airy
Katsbaan
Eves Pt.
Malden
Canoe Hill
Viewmonte
Saugerties
Rock Id.
Tivoli
Madalin
Nevis
Mount Marion
Sycamore Pt.
Magdalen Id.
Glasco
North Bay
Cockburn
Cruger Id.
South Bay
Turkey Pt.
Annandale
Upper Red Hook
Glenerie
Barrytown
Baker Mill
CATSKILL
GERMANTOWN
CLERMONT
SAUGERTIES
RED HOOK
ULSTER
HUDSON RIVER
GREENE CO.
COLUMBIA CO.
ULSTER CO.
DUTCHESS CO.
BOUNDARY LINE
NEW YORK CENTRAL AND HUDSON RIVER R.R.
WEST SHORE R.R.
CATSKILL MT. AND CAIRO R.R.
BEACON
Ridge 400
A204
A202
A20
A203
A157
A158
A201
A16
A156
A142
A155
A154
A148
A218
A152
A141
A153
A15
A14
A147
Flagley
A217
A213
A212
A211
A21
A146
A145
A144
A143
Starfish
Hard bed

works of man, such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light shown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line would be drawn at any altitude, but in practice only the contour of certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff. The manner in which contour lines express altitude, slope, and grade is shown in the figure below.



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STANDARD SYMBOLS

CULTURE

(printed in black)

1617

77

C. Hard "calcareous" rock. 45
Figures do not give true thickness
as beds dip 9°. Contact of calc
calc rock is 80' below head.
Just under contact is coal
Coal mined for coal. 3'-1"
Transition interval only
differently separable from
upper 45'. Separation is
questionable

A 14³, A 14⁴ - Calcareous hard bed
of Lower Mt. Marion ~~A 14⁴~~

A 14⁵ - Beds just below hard layer
& transitional to it.

A 14⁶ - hard layer of Lower Mt.
Marion.

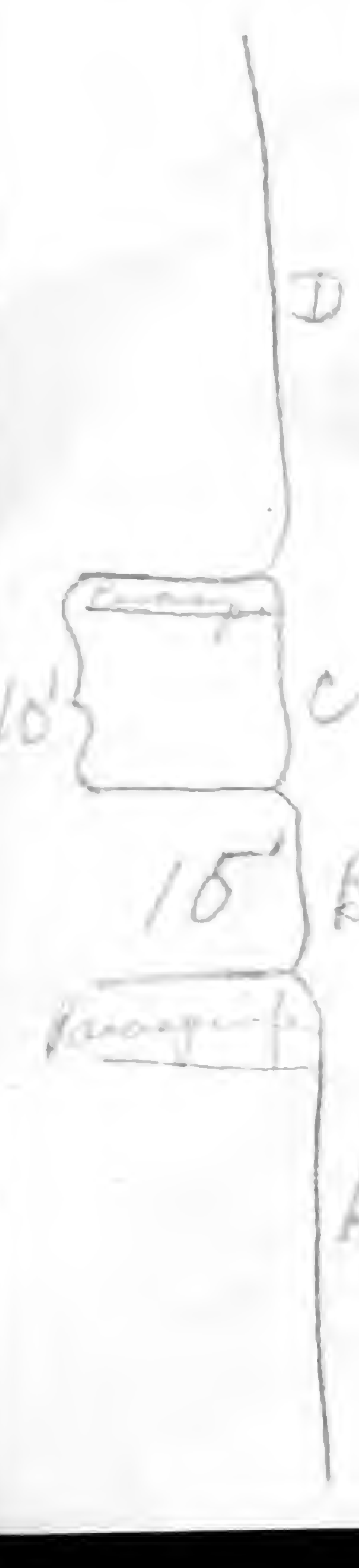
A 14⁷ - hard layer
A 14⁸ - " "

August 15

A15 - 0.15 mile NE of Great Falls corner lumpy sandy shale with irregular foot there capped by 1-2' hard ss with many fossils N13°E 8°NW
P. acuminatus a. P. flabellum
Sp. audaculus Chonetes coronatus
Leptostrophia Sp. amucronatus
C. nodocostata L. mucroptera below falls
The soft material under Paraspirifer extends about 0.1 mile NE by road. This Paraspirifer bed forms the hard ledges responsible for the falls.

Small Schizophoria

A15' - Great Falls - about 40' high. Two hard ledges in Falls: Lowest ledge about 15' above bottom. Middle bed of softer lumpy shaly ss. about 15' high upper bed of 10', hardest at top where it is somewhat limy and contains Paraspirifer.
Downstream A thickens to about feet.



Bed D above falls 65-75' high consisting of flags 6" thick alternating with shaly rock.

A - contains: Schizodus, P. lirata, large rotund chonetes. Bed A extends downstream for —

about 1/20 mile and exposes
a thickness of about 100' of
the dark sandy crumbly shale

In the Paraspirifer bed a species of Taonurus is abundant. The Paraspirifer bed strongly reminds of the Silica shale. The Sp. mucronatus suggests the Sp. prolifica, the Paraspirifer, P. bownockeri etc.
The upper 2' of bed forming base of falls also contains Paraspirifer.

Paraspirifer bed forming falls strikes N12°E and dips 16° NW. Other fossils seen in these upper beds are Douvillina small Schizophoria, Palaeoneilo tenuistriata, Pal. emarginata. M. concentrica

Section upstream –
For 0.1 mile the section is alternating beds of blue gray sandy shale alternately with ss beds from 6" to 1½' thickness + shell beds up to 10' thick. 0.05 miles farther upstream where shales become sandier + ss more frequent fossils occur in the ss. S. carinatus, large Camarotoechia, Sp. prolifica

1650 [redacted]

At bend of road comes about 15'
rock exposed for about 100 paces
abounding in fossils: 80

Paraspirifer — Devonaster
Large Camarotoechia — Paracyclas
Leiopteria large — S. magna
C. coronatus

Section consists of storm roller
zone 2', Shaly ss. with Camarotoech.
& Chonetes coronatus 4'
Coarse ss. with Leiopteria 8-9'
Then comes more shaly rock.
The ss are followed by 10-15' shaly
rock with C. coronatus, P. flabellum
P. lirata, Nyassa, G. circularis
About 150 paces upstream from
bend in road are 4' sandy
shales overlying hard ss
abounding in C. coronatus.
and about 1' below this layer
many Camarotoechias are
present. 70 paces further on
C. coronatus is common.
Rock extends upstream to
dam, 225 paces upstream
from bend of road. Rock at
dam on opposite of creek so
could not see it. About 100
paces below dam came
concretions in rock not far out
of place and these were
not fossils seen although
they may be present at dam

1651 [redacted]

A15^{2} — hard bed N24E 18° NW

81

A15^{3} — hard bed

A15^{4} — small patch thin-bedded ss with Nuculites triquetra, Orbiculoidea Camarotoechia

A15^{5} — Flags with Nuculites oblongus. Plants. Spiriferoid

A15^{6} — Flags.

A15^{7} — Two waterfalls, upper one 100 yds. East of corners, second one about 0.15 mile downstream second falls over hard band with sp. granulosus type Conularia

A15^{8} — About 15' hard sandy rock getting softer for 10' downward, then 15' harder beds at bottom. Dip on top N20°E 29°NW. Fossils [illegible] here Schizophoria, atrypa, small Pentamerella.

1652

See Crosby on Keystone Faults — Parking just over bridge

82

August 16

Webber Bridge

~~Hobo~~ Bridge — Just upstream from bridge ledge of Onondaga limestone strikes N 35° W 19° SW above the limestone comes an inch of black shale, then ½ inch crumbly, a thin shale seam, then 1" of limestone block crumbly. Above this come black shale, with brown streak and scattering to fine red rusted flake. Contains Limitaxis, Styliolina Cladwick estimated 75' of black shale here. Contains one layer of concretionary dark limestone upstream toward the end of the cut the dips are irregular & the beds much distorted.

This section I think represents the Union Springs, and the limestone layer may equal Cherry Valley.

1053

Section in Kaaterskill Clove
A16'— Segment from bend in main
road below Kaaterskill Falls to 83
Haines Falls village —
Bridge over brook below Kaaterskill
Falls is at 1490'. Rock is exposed
below bridge for 30'. Lowest rock
A— Mottled green & red in brook
at base of falls — 1'—
B— Heavy-bedded massive greenish
ss. forming lower cascade 35'
C— Red beds — 15'
D— Heavy-bedded ss 10'
E— Covered 40'+
F— Red beds 15'
G— Heavy-bedded ss with fine
ferns / N7°W 7°W 35'
H— Red beds 20'
d— Heavy massive x bedded
green ss. base at 1642' — 15'
Contains scattered pebbles.
J— red beds, with green lenses & knobby at top 11'
K— Hard x bedded ss
L— green ss. passing laterally into
beds with red shale 35'
M— Heavy massive ss 30'
N— Knobby red shale in waterfall — 20'
O— X-bedded ss. 5'
P— Red beds, with 1' green sh at top 20'
Q— X-bedded green ss. conglomeratic
with scattered pebbles & 10' heavy 45'
shale at base. Much covered in
middle 1/3
R— red shale 1790' 34+
Covered to RR & road crossing in

1654 [redacted]

1922
1900

Haines Falls, 130' plus dip.

84

Section from Mountain House to Summit —

A — Mountain rests on a ledge of X-bedded ss.

B — Red ss + shale ending in 1' knotty green rock. Possibly bed P. 60'
of preceding section.

C — X bedded ss, large pebbles in base. This may be same as bed Q which contains black sandy shale near base and in lower part 30'

D — Red beds — 10'

E. — Heavy ledge conglomeratic ss. Layers of small pebble 2 or 3' — 40'

F — Covered probably in red shales + ss. — 40

G — Massive conglomerate, base of Mr. Chadwick's [illegible] conglomerate. Pebbles large of quartz + ss. up to 10" — 25'

Upper part of ledge consists of coarse ss.

85

4— Mostly cross-bedded ss with shattered pebbles of large size and lenses of conglomerate — 45'

3— Conglomerate with pebbles becoming scarcer at top — 10'
This is the very summit of the hill.

Section below Kaaterskill falls

0.35 miles down from falls and at 1350' are heavy-bedded ss. about 35' above beside the road but with a heavy ledge of about 50' above it. 35' ledge some dark green shale containing plants.

At next crossing of creek + road 1.45 miles below Kaaterskill falls creek and at 980' comes a great cliff about 100' high. Lowest bed is a 15' ledge heavy-bedded ss containing thin layers of red + green shale and a piece of Equisetites 3' below top. This is underlaid by dark greenish sandy shale with thin red laminae

15'

1656 [redacted] 86

Then comes 8' knotty red beds followed by 40' red beds with sandy layers. This is followed by a 40+50' ledge of X-bedded ss. 200 paces upstream the upper ss ledges form a falls 20-30' high. Below the bridge 15-20' of red shales are exposed. This sections dips about 5° N75W.

Aug 17

Meads to Summit of Overlook Mtn.

1715 – 1780 – Covered
1780 – 1800 – ledge of X-bedded ss.
1800 – 1805 – covered
1805 – 1812 – X-bedded ss with plants
1812 – 2260 – covered
2260 – 2290 – X-bedded ss.
2290 – 2390 – covered
2385 – 2390 – banded red shale.
2390 – 2430 – Covered
2430 – 2440 – Red shaly ss
2440 – 2445 – X-bedded ss.
2445 – 2448 – Congl. with quartz
2448 – 2452 – X-bedded ss.

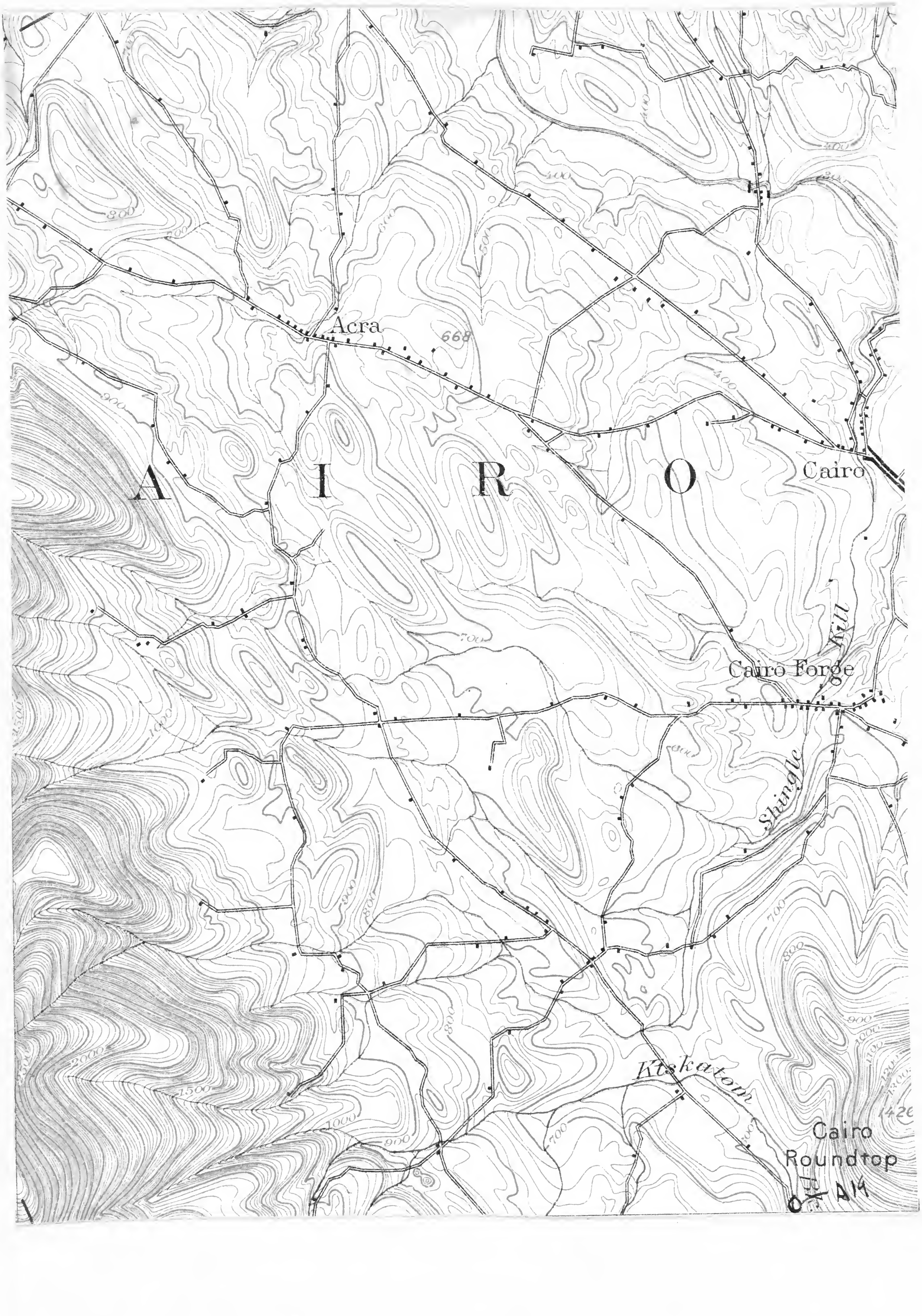
Mr. Chadwick believes this congl. correlates with the lowest one above the Mtn. House. This one has smaller pebbles + many shiny pebbles.

2452 – 2535 – covered
2535 – 2553 – X-bedded ss. 87
2553 – 2595 – covered
2595 – 2610 – Red shaly ss. 7° N50°W
2610 – 2780 – covered
2780 – to left of road about 70'
X-bedded ss.
2780 – 2895 – Ledges of x bedded ss
at 2900 behind hotel in a quarry
in conglomerate ss. Left off on
road below old hotel are
thick bolders of coarse conglomerate
like that above the Mtn. House
At 2960 strike N50E 2° NW
Top ledge of Overlook is 15' of
X-bedded ss underlain by red shale.
Coarse conglomerate boulders here
appear to be ~~float~~ glacial drift.
If so the conglomerate which
correlates with the congl. above
the Mt. House is not present
on Overlook Mtn.

Mr. Chadwick thinks [illegible]
bed not great in thickness
& folded by underlying [illegible]

Read Nat. Hist. N.Y., Part V,
Agriculture, by E. Emmons
Mention Terebratula lepida at
Manorkill.

1657a


Acra
668
A I R O
Cairo
Kill
Cairo Forge
Shingle
Ktskatom
Cairo
Roundtop
A14

August

A 19 — Dark shales in red + green beds, mounted by X-bedded ss.
Ostracods in shale Just W. Cairo

Round top

Jenny's notch

1080 — 1192 — Covered
1192 — 1195 — red irregularly bedded ss
1195 — 1775 — Covered
1775 — 1850 — hard sandy red shale
1850 — 1895 — rede beds
1895 — 1905 — hard X-bedded ss. turning red at top.
1905 — 1907 — red bed.
1907 — 2130 — occasional crops of red shale & ss.
2130 — 2135 — Red weathering x-bedded ss
2135 — 2170 — cliff X-bedded ss. with top in road at 2220.
2220 — 2232 — covered but probably red ss.
2232 — 2252 — X bedded ss with red shale above it.
2252 — 2295 — Covered
2295 — 2301 — X-bedded ss.
2301 — 2325 — X " " with much conglomerate at top.
2325 — 2338 — X-bedded ss. or congl.
2338 — 2393 — mostly covered. So red sandy ss at bottom

Notch 2393 — 2403 — 10+ x bedded ss. Up slope to south
2403 — 2430 — X bedded ss.

1659 [redacted]

89

2430 – 2440 – X-bedded ss. Calc.
2440 – 2480 – Covered
2480 – 2500 – X-bedded ss.
2500 – 2530 – Covered
2530 – 2533 – Coarse Grey ss.

A19¹ – Large Ammo in X-bedded ss having Exogyra Ponderosa, about 20' thick. Under the ss is 1' green shale and under that 3'± ft of red shale.

A19² – Dark shales & ss with Ostrea Pitcheri and Exogyra Ponderosa

The type section of the Mount Marion is apparently the cliff just west of Mount Marion.

1660

August 20 –

Plattekill Clove

90

Ledge of conglomerate about 6'–8' thick with top forming under road at single bend (X). Pebbles mostly small but up to 2 or 3" in a matrix of coarse ss. Matrix rather dark + rocks weather dark. Uppermost surface chiefly sand, with a 3–4 foot bed of sand above it.

conglomerate rises gradually above road + is about 30' above it at about 1/4 mile

Section up Plattekill from 10 feet below ~~County line~~ to ~~summit of Clove~~ Devils Kitchen at 1872

1170–1200 red shaly sandstone with lighter red bands[?]. At top about 1' green sandy shale

1200–1215 — At base dark slaty shales with plants, followed by heavy-bedded ss. ~~A bedding surface gives strike N35°W 19°[?] W. May not be reliable.~~

1215–1222 Red crumbly shales passing into smooth red siltstone, then 4–5' crumbly red shale, say 1' green crumbly stone + 6" slaty dark shale. Top surface N57°E 5°NW.

1222 – 1228 – X bedded ss with a little dark slaty shale

1228 – 1235 – Red beds a hard sandy crumbly red layer in about middle of interval dip 5° about N47°W. 1' green beds at top

1235 – 1252 Heavy bedded – X bedded greenish ss. Ledge about 25' thick in cliff

1252 – 1282 – Red beds with crumbly smooth and red ss beds.

1282 – 1302 – Heavy-bedded X-bedded ss. with some pebbles at base component of dip 5° in direction of wind

1302 – 1311 – Green crumbly shale passing into dark green siltstone

1311 – 1350 Mostly covered but about 5' red beds at base.

1350 – 1362 – X-bedded, heavy bedded greenish ss.

1362 – 1378 – Red beds containing dark smooth barren shale at base

1378 – 1381 – Ledge ss.

1381 – 1460 – Covered. Possibly rds

1460–1530– Great mass of greenish heavy-bedded ss with Eospermatopteris. Top surface in contact with red beds gave N50°E 5½° NW.

Sighting on ledges across valley from big bend at 1620' gave a component of 2½–3°

1530–1535 Mottled red & green becoming dark green & shaly at top. This bed is about 7'

1538–1548– X-bedded ss.

1548–1550– red shaly ss. becoming green in upper foot.

1550–1641– Great bed of heavy-bedded X-bedded ss with plants

1641–1670– Red beds.

1670–1681 Green beds passing into heavy reddish-grey ss at top for 5'.

1681–1705– Red beds.

1705–1750– Great mass greenish X-bedded ss.

1750–1756– Knotty red.

1756–1825– heavy-bedded conglomeratic ss. much cong. at bottom

1663

93

Chadwick readings from 1170' up

Above car.

First exposure 137' beds		1170
Covered (for 215' horiz.)	50?	1282
Second exposure 48' "		(above 1311)
Covered (for 35' horiz)	10?	
? Thus 5'	5'	
" (for 265' horiz)	60?'	1350
Third exposure 44' beds		1381
Covered (for 600' horiz.)	130?	1460
Fourth exposure 88' beds to R. bank,		
and 100' "		
to L bank = 188' "		(1620?)
and 93' beds		
Covered (for 60' horiz.)	15?	(beds. 1651 + 1705)
Fifth exposure 175' beds (to sign on road)		1840
Covered (for 140' horiz.)	10?	
Sixth exposure 30' beds		1860
Covered to road and to bridge (540' horiz.)		1872

TOTAL 1000' beds in 690' vert.

a 310' dip in 1.1 mi beeline.

= 3° average dip.

1825 – 1840 — red beds. 94
Above are heavy-bedded ss. at least 100' above road

1840 – 1860 — X-bedded heavy-bedded ss.

1860 — covered to Devil's Kitchen which 1860 by contours. At Devils Kitchen is a great sequence of ss & red beds. The bridge is at 1872 by barometer. Dip appears to flatten upward 2½° component on upper ss above the bend.

St. about 30' above bend strikes N.50°E 3°NW.

14.75 Section is 1.6 miles from bridge in Platte Clove.

Next section begins at 1.7 miles & runs to 1.8 miles from bridge
Section begins at. ~~1040~~ 40 1038

~~1055 – 1055 Green ss. for 10' below 1055~~

1038 – 1040 — heavy bedded ss
1040 – 1055 — red beds ending in 2' green ss.
1055 – 1073 greenish coarse X-bedded ss.

980
760

95

1073 — 1078 — red beds
1078 — 1092 — X-bedded greenish ss
1092 — 1105 — Red beds with a bed 3' thick of X bedded ss in middle
1105 — 1120 — X-bedded ss. greenish
1120 — 1170 — ~~[illegible]~~ Red beds for here to 1170.

Strike & dip on upper surface ~~N 80° E 5½° N 30° W~~ N 50° E 5° NW

The Chasm (Kaaterskill Creek)

In lower part of Chasm about 15' X-bedded ss.
Red beds about 75'
X-bedded ss 25
Red beds ?

A hard red bed about 1.5' above lower ss dips 4° S 85° W.

A 20' — Hard bed for 0.3 mile crosses road at end of 0.5.

A 20 — Strike nearly east-west and dip to south at bottom of glen. Thin ss thins from portion in area of outcrop. Top ledge dips about 5° N 65° W. Falls over a hard ledge of

ss like that on Hy 23A
Rock mostly hard argillaceous
+ sandy but zones in it are
weaker or stronger thus
etching out under falls etc.
~~Bed 9~~ 95' exposed under
bridge. Above bridge is softer
Mount Marion arenaceous shale

$A\text{-}20^3$ hard band just above bend
in face of hill bands of sandy
shale with thin ss. layers

$A\ 20^2$ — small patch sandy shale
with thin ss. beds N25E 8°SW
heavier ss. underlie the upper
shaly beds. Possibly 20' exposed
Mr. Chadwick found fossils here.

$A\ 20^1$ — Quarries in flagstone

E

W

5

1667

August 21 97

A21 — Esopus for 0.15 mile west of R.R. track.

A21' — Anticline bringing up Schoharie = Esopus in center with Onondaga on flanks.

A21² — boulder of Stony Hollow bed probably not far out of place

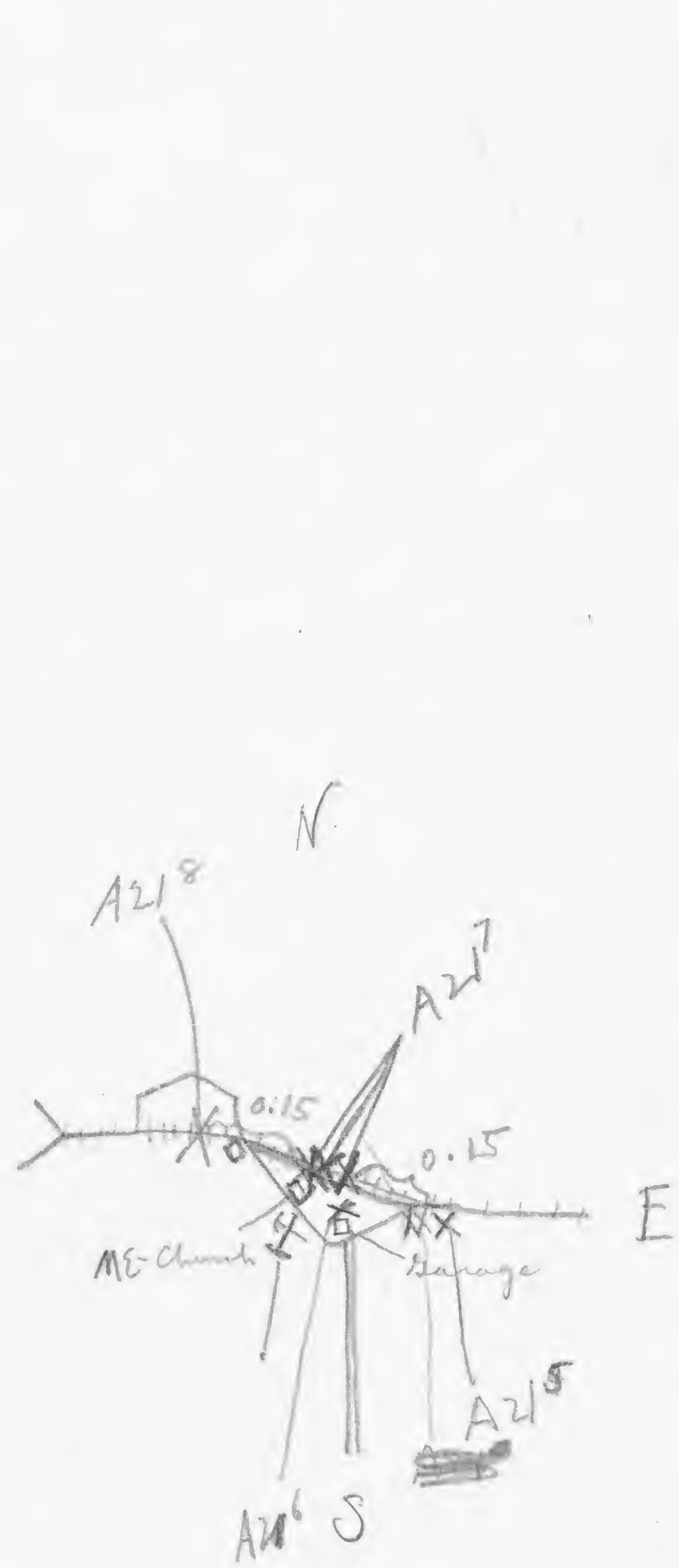
A21³ — cut at base of hill showing 20' or more of Sandy shales of lower Mt. Marion.

A21⁴ — cut 35 paces long in mudstone & beds of 6" thick Contains Parazyglas, Grammysia and Camarotoechia. Strike N 7° E 8° NW

A21⁵ — Cut about 20' thick in ~~shale~~ sandy mudstone. One stone rolled bed. Another cut occurs about 50 yds up old road from A21⁵. About 15' of rock contains stone rolled bed at top with L. circularis. Intersection of & old roads.

A21⁶ — behind garage at intersection comes fossiliferous Hamilton. To SW of bend comes

A21⁶ᵃ a small quarry in flagstone certainly Tuftelepidodendron


N
Azi 8
Azi 7
0.15
0.15
E
ME-Church
Garage
Azi 5
Azi 6
S

$A21^{7}$ cut about 100 paces long under ME Church exposes about 15-20' of rock. In the softer beds under the hard (strong ss ledge) layer Camarotoechia & crinoids were found. This bed and the associated ss probably are the same as those at the garage. The flags thus come in above the sandy shaly beds which are undoubtedly Marine. The fossils come in 0.15 mile from intersection of new & old roads.

$A21^{8}$ — 0.15 miles farther west on road comes thick cut in Ashokan beds cut 0.07 mile long and about 20-25' high

$A21^{9}$ — dark sandy crumbly shales overlaid by X-bedded ss. Greenish line on weathered edges of shaly stone

$A21^{10}$ — X-bedded ss by house and a little beyond. Ledges of ss appear in lozenge-shaped hills.

$A21^{11}$ — Low hill with X-bedded ss of Ashokan type showing on west side house and at 3 corners just beyond the house and opposite road from north is a large cut. 0.1 mile from

[redacted]

here appear first red beds at A21^{12}.

1669 99

A21^{12} Section begins on slope of hill at bend. To west at ~~foot~~ base of section are some 20-30' mottled red + green beds + reds, overlaid by 9' heavy ss, followed by 7' crumbly green beds, 4' coarse heavy bedded ss, 1 1/2 crumbly green + capped by 10' x bedded ss. Dip 4° N45W

A21^{13} — x bedded ss. about 15' high. Ss form long low, discontinuous ridges.

A21^{14} — For 0.25 mile up glen a succession of red, green + dark shales. Then comes about 35-40' heavy bedded ss. forming falls + cascades. On a red bed half-way between bridge + ss. I measured a dip of 4° in ~~dist~~ upstream. Heavy ss comes in on 700' contour.

One mile N. of W. Saugerties along road at foot of Mtn. the foothills between road and Mtn. consist of successive ledges of ss interbedded with red shale to the Mtn. front.

Some of the ledges on Mtn. front seem to lens out laterally.

1670 [redacted]

$A21^{15}$ — large in red beds with 100
X-bedded ss above. Strike on
flat red bed gave N17°E 6½° NW.

$A21^{16}$ cut in road at lower bend
showing red beds & green ss +
X-bedded ss.

$A21^{17}$ — Soft crumbly sandy sh with
thin ss layers!

$A21^{18}$ — in bed of stream under dam is
a storm roller zone, above this
are about 15' shaley weathering
argillaceous ss with fossils:
Camarotoechia, Sp. mucronatus,
C. coronatus, P. flabellum, Sp. audaculus
type. At top of bed is another
storm-roller. This section is near
top of Mt. Marion.

A4'

101

ED STATES

1871

gradually away and forms an inclined table-land that is
versed by a few shallow gullies. On the map each of t
features is represented, directly beneath its position in
sketch, by contour lines.

The contour interval, or the vertical distance in feet betw
one contour and the next, is stated at the bottom of each m
This interval differs according to the topography of the
mapped; in a flat country it may be as small as 1 foot;
mountainous region it may be as great as 250 feet. Cer
contour lines, every fourth or fifth one, are made heavier t
the others and are accompanied by figures showing altitu
The heights of many points—such as road corners, summ
surfaces of lakes, and bench marks—are also given on the m
in figures, which show altitudes to the nearest foot only. M
exact altitudes—those of bench marks—as well as the geod
coordinates of triangulation stations, are published in bulle
that are issued free by the Geological Survey.

The lettering and works of man are shown in black. Bo
daries, such as those of a State, county, city, land gr
township, or reservation, are shown by continuous or bro
lines of different kinds and weights. Metaled roads are sho
by double lines, one of which is accentuated. Other pu
roads are shown by fine double lines, private and poor ro
by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of the princi
city, town, or natural feature within it, and on the margin

A4'

101

The Cape
Hanging Rock
Falls
Beer Kill
Fantine
Kill
West Branch Beer Kill
Greenfield
Red Kill
CEM
Rondout Creek
Wawarsing
STATE REFORMATORY
Napanoch
ALT
ALT
AS
ELLENVILLE
BM
320
Shingle Gully
Ice Caves
Nap
WAWARSING
Cranberry Lake
Lemon Kill
Creek
DIVISION
KINGSTON
North Mount Meenahga
High Pt
2246
Indian Rock
South Gully
Gully
Maratanza Lake
2233
Cragsmoor
2273
Bear Hill
Losees Hill
Sams Pt
2255
EASTBURG
ULSTER CO
SULLIVAN CO
Sandburg
Creek
Red
Sandburg
NEW YORK
WESTERN
Jy29
Jy29
Jy29
Jy29
Jy29
Jy29
Jy29
Jy29

1. Pt. Reyes Vicinity

2. Stinson Beach Vicinity

3. ~~Reservoir No. 1~~

4. ~~Hogback~~

5. ~~Mt. Tamalpais~~

6. ~~Pine Hill, Ross Valley, Marin Co.~~ 2

7. ~~Woodacre~~

8. ~~Sandburg Creek Valley~~

9. ~~Bear Hill~~ To August 5.

2300
200
2500-3300

3200
100
3150

1350'
1600
2950

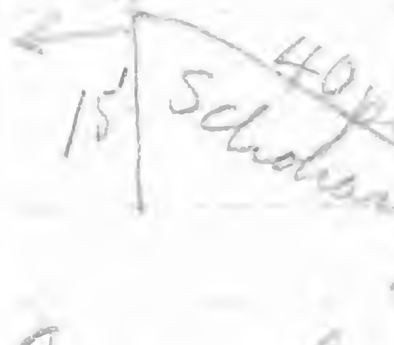
535
1070
218
1338

August 22 1672

A22 Wawarsing - Quarry in Onondaga about 0.3 miles N of main road and about 1 mile east of Wawarsing Outcrop belt 100 paces in width Strike N27°E 38°NW. Magnetic Here is N40°E 38°NW! Strike on uppermost exposed beds is N20-25°E! Onondaga outcrop covers ~~12~~ 100 paces in width ~~50~~ north of road and. Onondaga Schoharie outcrop is exactly at road and runs about 20 paces down dip. and strikes N41E The Schoharie here consists of alternating shale & limestone. Onondaga begins at about 330' by creek bed.

Fossils collected 40 paces from top according to diagram

Corpus continues for about 10 paces past Schoharie



Onondaga - Schoharie contact 200 paces from stream & road intersection.

1673

A22' — Hoornbeek Lime Co. Qy — 5' wall Qy 10' high, N wall 10' 35 paces between walls Strike N30E° 30-34° NW. Lower Onondaga lumpy, middle portion rather pure limestone. Locality A5' is 0.15 mile from intersection. Dip enters Qy to E open and lies just under the quarry. The contact is feet north of the highway at ~~this~~ the quarry.

The approximate base of the Onondaga is ~~intact~~ at the roadside 0.6 miles from the intersection.

A22² — Dark gray sandy crumbly mudstone exposed horizontally for 60' down dip. Strike N33°E

A22³ — Hoornbeek (L.A.) limekiln — Pit in Onondaga; Strike ca. N35E 42° NW. Mentioned by N.A. Darton. This locality is 0.25 mi. east of bridge at Napanoch + 0.1 mi. S of road in cornfield.

A22⁴ — Rock in quarry of Ashokan type — Strike about N30E 20° NW

1C71 104

A22^5 - X bedded ss of Ashokan type striking N 30 E and dipping strongly upstream

~~Fossils~~ Fossils are not common in lower beds except in Vernoy Creek, large fp. granular areas with pebbles & thin bands of quartz pebbles can be seen. Upstream from this ~~area~~ locality and in hill we see nothing but beds of Ashokan type. This is probably the highest Hamilton. The fossiferous beds measure about 60' down dip horizontally

Outcrop of hard bed on top of hill 0.6 mile SW of High Falls road on U.S. 209. Must be Esopus

1674a

The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently slop

BROOME

SCHOHARIE CO.
ALBANY CO.

RENSSELAERVILLE

Smith Corner

W

Esthe ria

Scott Patent Hill

Catskill Creek

Preston Hollow

Ten Mile Creek

Eight Mile Creek

Esthe ria

Medusa

Potter Hollow

Cooksburg

BOUNDARY LINE

ALBANY CO.
GREENE CO.

F A23

Oak Hill

Esthe ria
Saybrook

F

Durham

Esthe ria

Catskill

West Durham

GREENE CO.
SCHOHARIE CO.

Mt Pisgah

A23²

D U R H A M

East Durham

Cornwallville

Mt Nebo

Thorp Creek

Mt Hayden

Mad Brook

A23
A23

Fall Creek

Hervey Street

Ginseng Mt

Mt Zoar

East Windham

A19

A19

South Durham

W I N D H A M

Windham High Pk

Windham

Union Society

Elm Ridge

Burnt Knob

Acra Point

C

Hensonville

Batavia Kill

Cave Mtn.

Big Hollow

Round Hills

Thomas Cole

Black Dome

Blackhead

BLACKHEAD MOUNTAINS

J E W E T T

16746

Have fossils from Sherburne"

NEW YORK
DURHAM SHEET

E S T E R L O

Wolf

Fly Creek

South Westerlo

Lambs Corner

Basic Creek

Greenville

August 23 - Glen just N of Hervey Street. Lower part glen composed chiefly of heavy-bedded hard ss, some cross-bedded some in very heavy beds forming. At a heavy ledge forming the side of a falls is a calcareous layer with many ostracods. Red beds appear in the falls above this one and continue upstream and beyond the bridge for about 30' vertically. This stream cuts thru a little anticline, the beds in the upper part of the glen dipping gently upstream and the lower part of the glen floored by rocks dipping northwest.

A23' - Large falls about 100 feet downstream from bridge. Falls over 12' hard x-bedded bluish ss. overlying a few feet of red shale. Under bridge is a flat calcareous bed overlying, and overlaid by 9-10" shaly rock. Both limy bed & shaly rock above abound in ostracods. This is the same ostracod bed as upstream, but dipping dipping gently upstream

A23[2] — About 1 mile SSW of Durham, ledges of congl. Ls in field. Top of lowest ledge with fossils. 106

1076

A23[3] - ledge of x-bedded gray ss with fossils

Greased + oil changed 9493

August 24

From West Hinkley Southeast from RR bridge down to east bend of road Gasling into Stony Hollow + excellent exposures of Devonian. Just above Hinkley comes a heavy layer of olive crumbly beds probably the same as the heavy bed exposed below the long section on the R.R.

A24 - Old quarry 12' high + ledges above. Lower 8' is shaly crumbly ss with stone - boulder at top. above stone - roller 5-6' shaly rock then 6' ledge heavy bedded ss. Fossils rare.

[redacted]

A24¹ — 3' crumbly shaly ss, 2½' dark gray fine grained ss. with Nuculites. 1' Pebble bed in 2 layers separated by 2" ss. 107

1C77

A24² — At bend of road before Bridge over R.R. fine grained contorted ss with very large Tropidoleptus

A24³ large cut in bank on N-side road Rock composed of 15-20' dark shaly, crumbly ss. with 8-10' storm-roller bed at top. Fossils rare. Dip 2° N 40° W. Same rocks exposed in R.R. cut nearby. Cut extends about 0.1 mile around bend

Hard bed SE of Stony Hollow
At N end RR cut rock we regarded as belonging to the hard bed consists of softer + harder layers of shaly dark ss with Leiorhynchus. This part of cut is fully 150 paces from road intersection and about 20' high
100 paces from road intersection
This portion probably should be excluded. Here the dip is decidedly NE, strike N 70° W 4½° NE

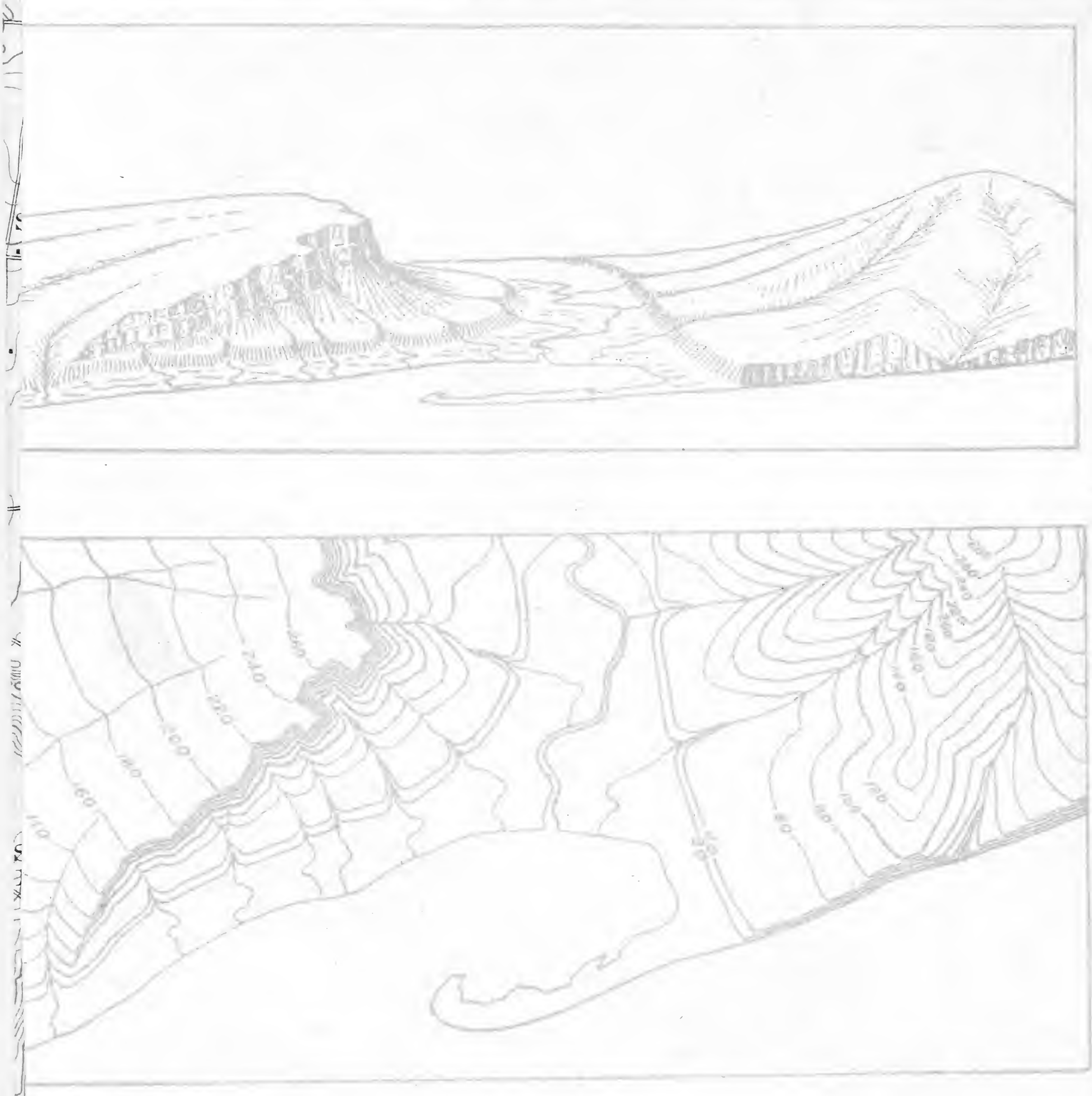
75 375 100 5280 1056 375 681

200 paces south from road
intersection comes hard layers
with crumbly material above
The upper 2' of this layer contain
Ceratopora & worm tubes. In
the ledge & 10' below come many
small fossils.

200 paces farther down track
from upper fossil bed appears
rock with large Schizophoria
and A. spinosa, same fauna
as we found near Mt. Marion
At this point the upper bed is
about 35' above the tracks.

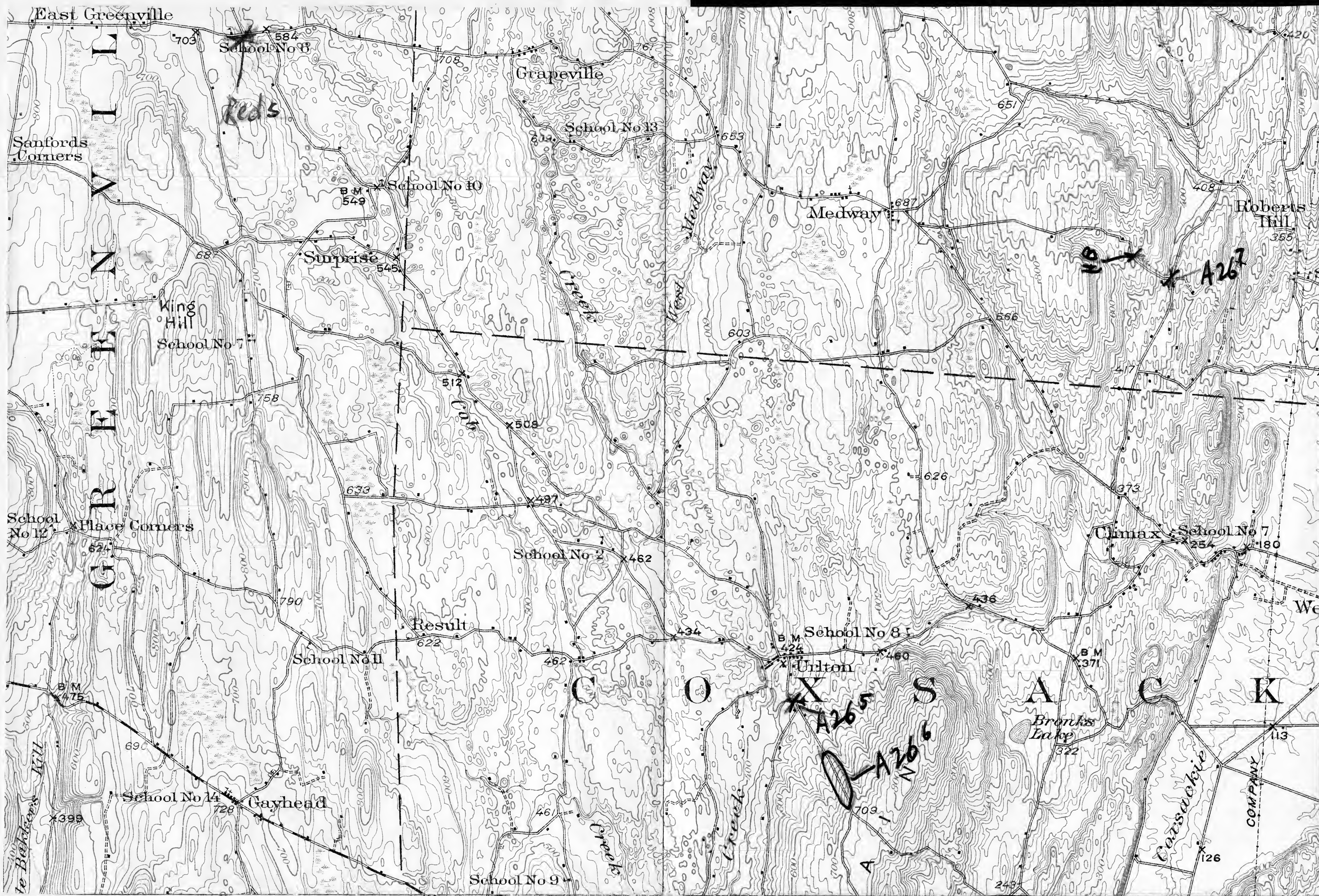
A11^{21} revisited Strike δ N63°W 4° NW
taken on thin hard bed with
small Pentamerella. No South
dip as Mr. Chadwick suggested
No cleavage here & rocks show
strong bedding clearly

16786



The sketch represents a river valley that lies between two
ls. In the foreground is the sea, with a bay that is partly
losed by a hooked sand bar. On each side of the valley is
errace into which small streams have cut narrow gullies.
e hill on the right has a rounded summit and gently slop-

16786


East Greenville
School No 8
Reds
Grapeville
School No 13
Sanfords Corners
School No 10
Medway
Roberts Hill
West Medway
Surprise
King Hill
School No 7
A26 7
Cat Creek
Creek
School No 12
Place Corners
School No 2
Climax
School No 7
Result
School No 11
School No 8
Urlton
C O X S A C K
G R E E N V I L
Bronks Lake
A26 5
A26 6
School No 14
Gayhead
School No 9
Coxsackie
COMPANY
Kill

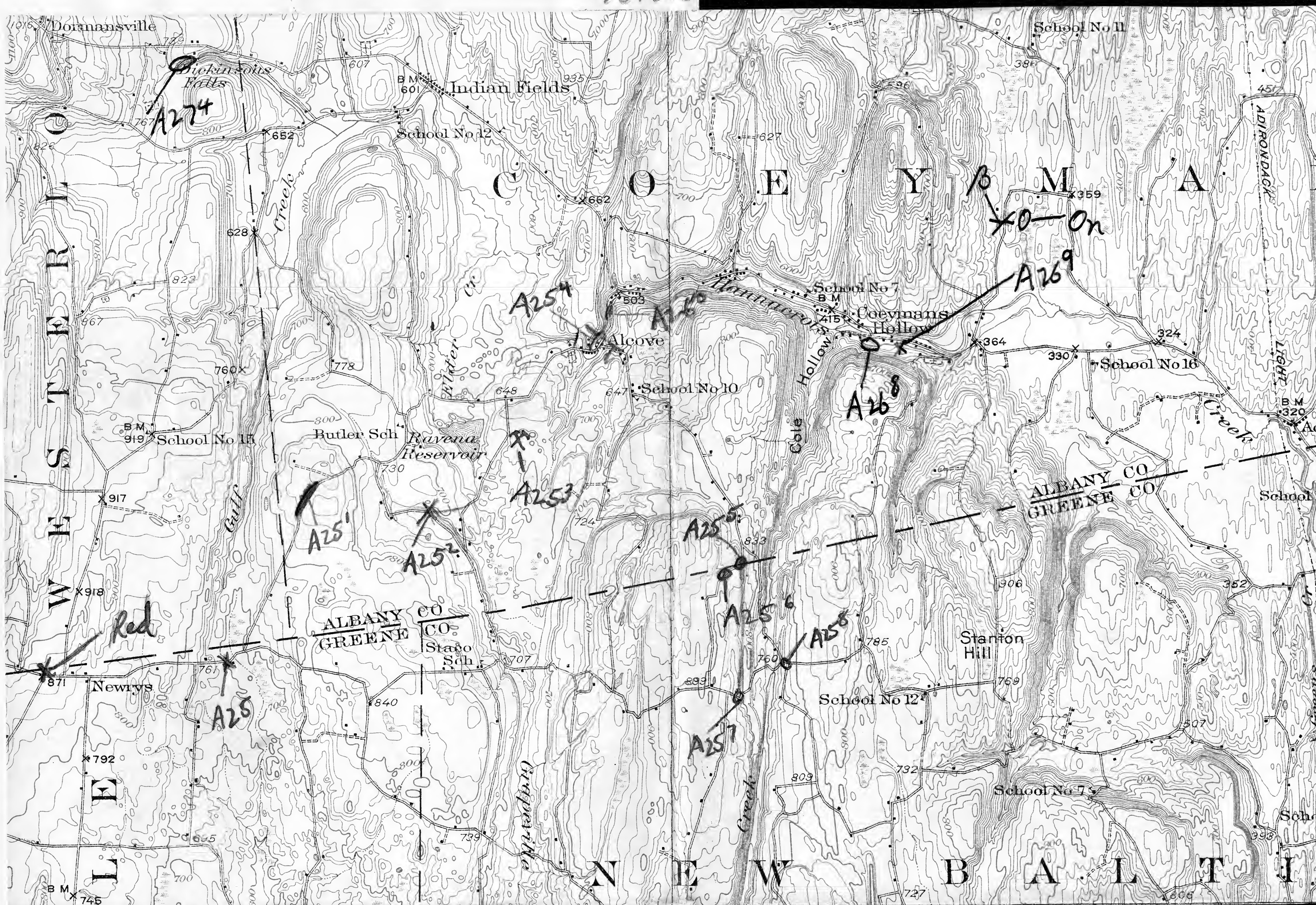
1678a

rks of man), such as towns, cities, roads, railroads, and ndaries. The symbols used to represent these features are wn and explained below. Variations appear on some earlier ps, and additional features are represented on some special ps.

All the water features are represented in blue, the smaller ams and canals by single blue lines and the larger streams, lakes, and the sea by blue water lining or blue tint. Intertent streams—those whose beds are dry for a large part of year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some os are supplemented by shading showing the effect of light own from the northwest across the area represented, for the pose of giving the appearance of relief and thus aiding in interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part which is at the same altitude above sea level. Such a line ld be drawn at any altitude, but in practice only the cours at certain regular intervals of altitude are shown. The of the seacoast itself is a contour; the datum or zero of altie being mean sea level. The 20-foot contour would be the re line if the sea should rise 20 feet. Contour lines show shape of the hills, mountains, and valleys, as well as their tude. Successive contour lines that are far apart on the p indicate a gentle slope; lines that are close together indie a steep slope; and lines that run together indicate a cliff. The manner in which contour lines express altitude, form, l grade is shown in the figure below.

1678a


Dormansville
Dickinsons Falls
A27⁴
Indian Fields
School No 12
C O E Y M A N
W E S T E R L O
Gulf
Creek
Alcove
School No 7
Coeymans Hollow
School No 10
School No 11
School No 16
School No 15
Butler Sch
Ravena Reservoir
Cole Hollow
ALBANY CO
GREENE CO
Staco Sch
Newrys
Stanton Hill
School No 12
School No 7
Creek
N E W B A L T I
A25
A25¹
A25²
A25³
A25⁴
A25⁵
A25⁶
A25⁷
A25⁸
A26⁰
A26⁸
A26⁹
Red
On
ADIRONDACK
LIGHT

1C79

Aug 25.

109

A25 – About 15' of shaly crumbly ss. passing upward into thin-bedded platy ss. Contains Tentaculites & Mucrospirifer. This is highest fossil bed of Mt. Marion here. Belt of Ashokan about 1 mile wide making 100' of Ashokan. Between A25 + Reds are flags + interbedded crumbly olives

A25' – Heavy-bedded ss + calcareous ls with many fossils. Suggests Colgate ss. C. coronatus a, A. erectum, Nyassa subalata

A25^2 – 20-30' ledge of shaly ss with thin layers of heavy-bedded ss. Miss G. reports a few fossils

A25^3 – Quarry in thin sandy shale + thin sandy flags with C. coronatus, Tentaculites + Camarot

A25^4 – Big cliffs of thin ss and arenaceous shale. Also well exposed up hill east of Alcove

A25^5 – 20-25' cut in crumbly dark arenaceous shale with R. flabellum, Paracyclas, Camarotoechia. A 15' band about 5' below summit abounds in Mucrospirifer &

[redacted]

1C80 110

C. coronatus.
Above the Sp. bed the shales are greenish & contain large Camarotoechia, P. flabellum, Paracyclas, O. undulata. At the very top is a layer 2" thick of sandy calcareous ss. with Schizophoria, Spirifer.

A25⁶ – About 20' crumbly shales with Camarotoechia in lower 3', ostracoda in the next 2' and becoming crumbly above and more sandy. Upper 5' heavy irregularly bedded ss. These are Miss G's uppermost fossils.

A25⁷ – Duplicate A25⁵ –
20' crumbly shale, dark & greenish alternating with thin ss ledges. At top and about 5' below road intersection comes 15" bed of Sp. mucronatus. In cemetery much shale thrown out & pieces were seen with Schizophoria which must lie near surface at cemetery. x-bedded flags about 10' above cemetery.

A25⁸ – About 5' below 760 at intersection in dark sandy mudstone Spiriferoids, Paracyclas, C. coronatus,

Ledges all along road from A25⁷ A25⁸.

1678c

harves

Breakwater and jetties

Bridge

Drawbridges

Ferry
(point upstream)

am

City, village, or borough line

Small park or cemetery line

Triangulation point or transit-traverse station

U.S. mineral monument

t

Mine tunnel

Mine tunnel
(showing direction)

Lighthouse or beacon

Coast Guard station

WATER
inted in blue)

r

Aqueducts or waterpipes

Aqueduct tunnels

Lake or pond

Unsurveyed stream and abandoned canel

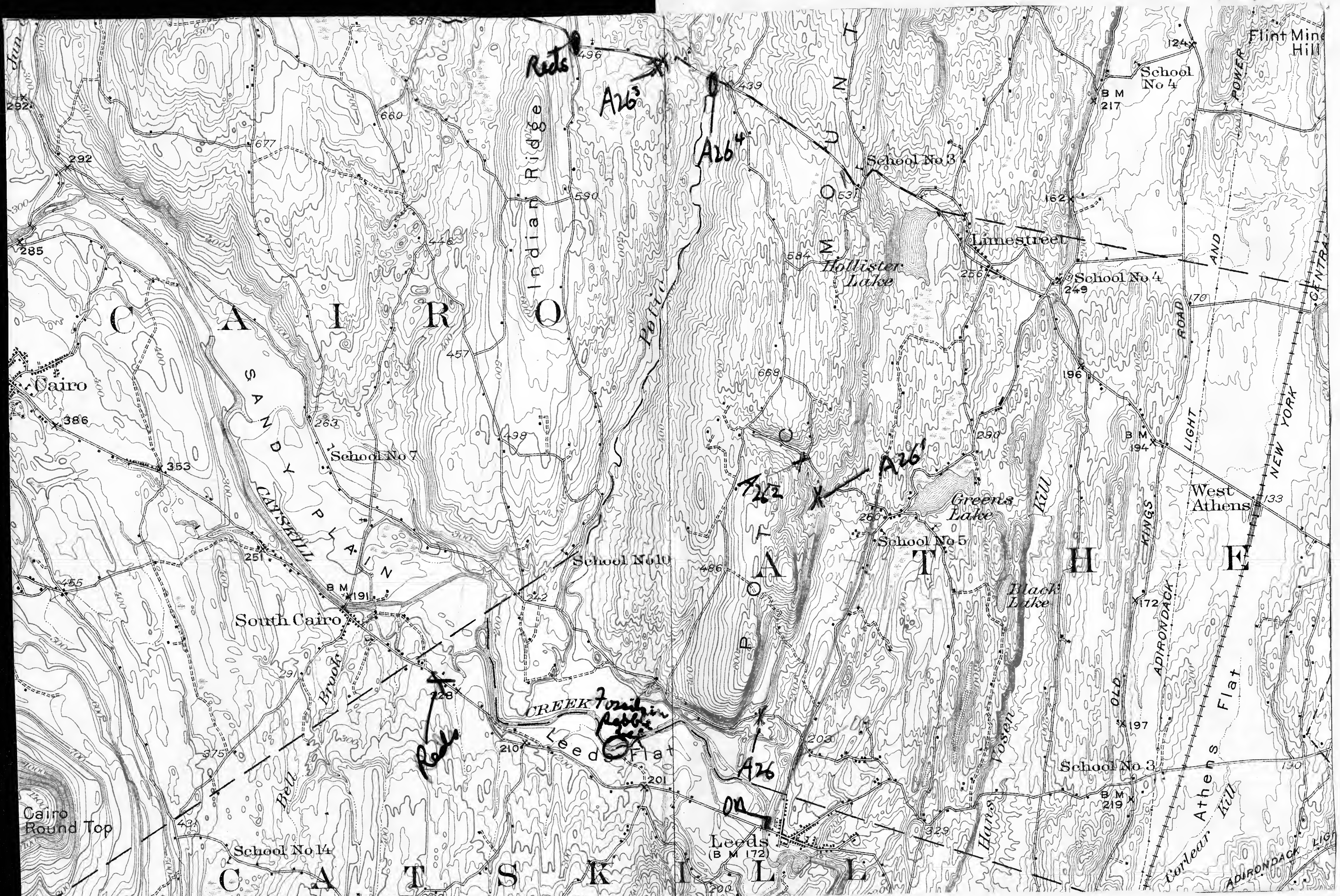
ring Well

Marsh

Submerged marsh

400'

1678c


C A I R O
A T H E
C A T S K I L L
Cairo
South Cairo
Cairo Round Top
Indian Ridge
SANDY PLAIN
CATSKILL
CREEK
School No 7
School No 10
School No 14
School No 3
School No 4
School No 5
Leeds Flat
Leeds
(B M 172)
Limestreet
Hollister Lake
Greens Lake
Black Lake
West Athens
Flint Mine Hill
Athens Flat
Corlear Kill
Haus Vosen Kill
Bell Brook
MOUNT
POT
NEW YORK CENTRAL
ADIRONDACK LIGHT AND POWER
OLD KINGS ROAD
ADIRONDACK LIGHT
B M 191
B M 217
B M 194
B M 219
292
285
386
353
251
455
375
431
263
446
457
498
590
660
677
631
496
439
531
584
668
486
242
128
210
201
203
290
260
256
249
162
124
170
196
133
172
197
150
329
200
Reds
A26³
A26⁴
A26¹
A26²
A26
Fossils in Rubble
Oh

400'

70

Aug '26

1681

A-26 — Probable top of Stony Hollow had been exposed in road & barnyard, exposed downroad (East) for about ¼ mile. Strike N15°E 7°NW.

A26' — Top of hard band in stream forming falls. Soft Bakoven shales shown in a cut about 0.3 mile in flat to east. Below the first cascade is a falls about 20' high over a heavy 10 foot cleared bed. Here flat dip on heavy bed is 8° N 68° W. Contact was seen in upper bed. Upper layer at 1st or 2nd cascade is a sandy calcareous bed. At the locality on Hy 23A I saw a hard bed with small Leiorhynchus which may be same as upper most layer here. If true, the layers with the Leiorhynchus probably should be placed in the hard layer.

Bed forms about 20' above 4th cascade. Rock of 3rd falls becomes soft below and hard layer with Leiorhynchus forms the 3rd cascade. Base of the 4th cascade is [redacted] The 4th cascade is 35' high and the rock is soft

1682/12

a dark gray heavy bedded sandy possibly conglomeratic rock that weathers light gray. At brow of this cascade is 80' below the top of the first cascade to top of first falls is at least 93' of rock. The dip in the lower part of the fourth cascade is 15°. About 65 paces downstream from base of cascade in bed of stream appear the solid hard type of rock. At the 65th pace the rock is soft shale greatly contorted. This just below this contorted bed is a harder layer with Stylolites This is the beginning of the "Bakoven" Limestone bed of middle Upper reaches of 2nd & 3rd cascades or second falls.

Above third fall are 15' soft crumbly shales.

The interval embraced by these falls covers only 150 paces down till below upper bed in road.

The third bed comes in plain at a point 0.1 mile below house

A 26 — 2' bed sandy ledge forming falls; dips 6° N 70° W. Exposed in stream just south of house

Distances down from top of 1st cascade

7	Top first cascade 327AT	337'
28	Top second cascade	330
10	Top 3rd cascade	302
37	Top 4th cascade	292
	Bottom 4th "	255

82'

3 1st falls
35 ft ~~depth of 2nd falls~~
20 ft ~~depth of 3rd falls~~
36 face of 4th falls

1683 113

A26³ – Flagstone quarries coarse ss. Fossils common. Sp. granulosus Camarotoechia, N. subulata, This is an instance of fossils within the Ashokan division

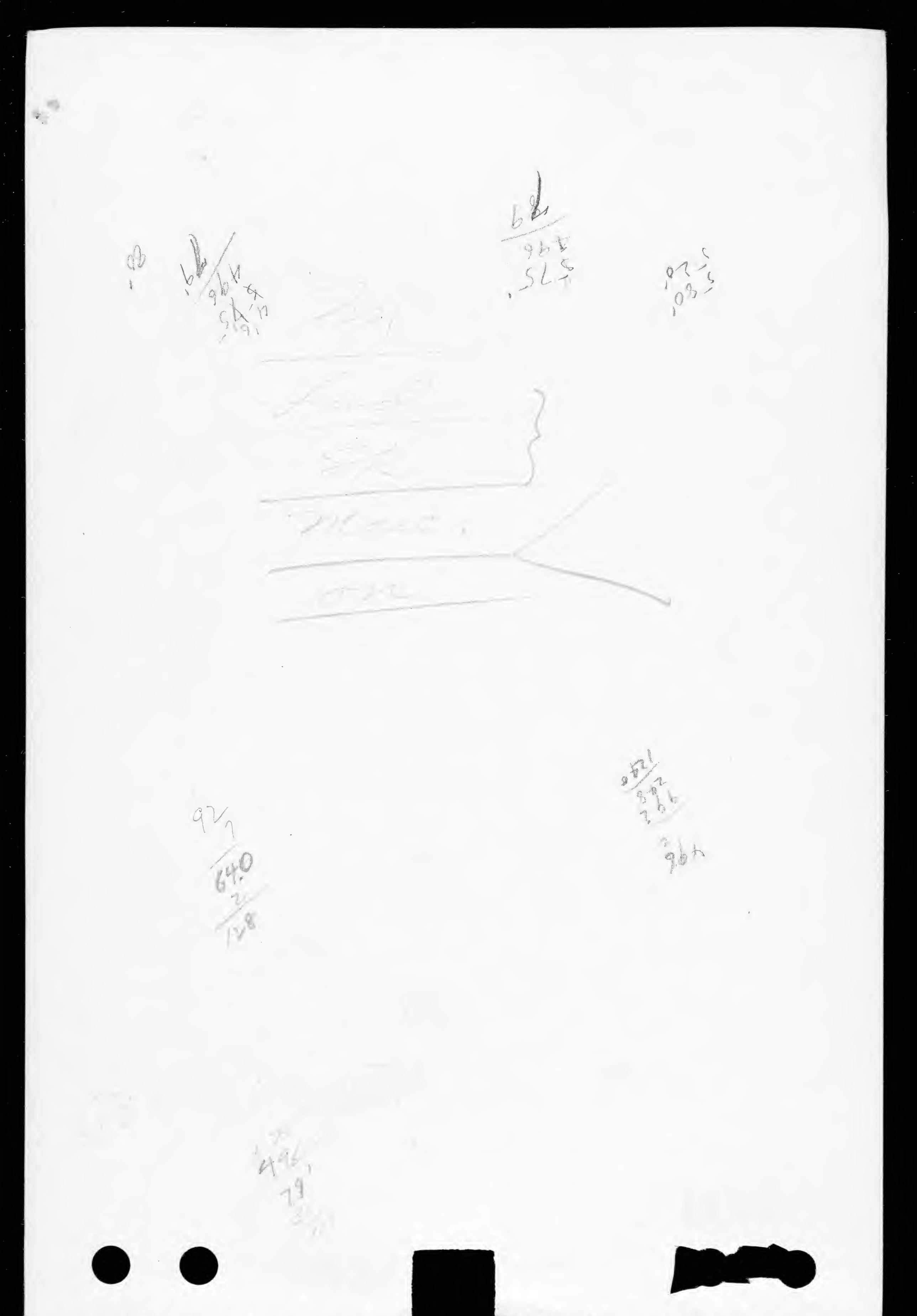
A26⁴ – Olives of Miss. G.

A26⁵ – Shaly with thin ss. containing P. liriata, & C. coronatus in abundance Camarotoechia, Cypricardella of gregaria type

A26⁶ – Up hill to SE of Urlton come flags with fossils suggesting locality at A25!

SSW of Roberts Hill

A26⁷ – Onondaga striking N17°E 3°NW Stream cut down between Onondaga & Bakoven which is exposed in the stream about 5' above the Onondaga
Upstream for 431 paces or 62' vertically, a nearly complete section of alternating black and dark gray shales abounding in small fossils. At 431 paces (62') comes a hard calcareous layer 4" thick of Union Springs or Cherry Valley type. Above this hard bed are about 12' soft shales contorted & cleaved in upper 3'.
Above contorted beds come firmer harder flat bedded rock of Stony Hollow member. Strike of hard layer N7°E 7°NW.



[redacted]

1C84 ~~114~~

Large calcareous concretions in upper part of Bakoven from 700 feet to 731.0 Cephalopods and small snails in hard bed at A. Layer above A is composed of sooty & gray shale.

Contact of Stony Holl. & Bakoven comes at 496' in stream. Contact here suggest a great unconformity because of contortion of strata at top of Bakoven.

Stony Hollow bed extends up stream to crossing of road & stream at about 580. ~~Barometer here gave 565.0~~ Barometer gave 575' on a knoll about 30 yds N of road where highest exposed beds were seen. These contained Dechenella and are probably from 10-30' below top of Stony Hollow.

At 540' fossils were found in Stony Hollow bed.

A26⁸ — Steep bank showing soft dark shales and beds of ss from 6" to a foot thick, typical lower Mt. Marion above hard bed. Dip 6° ~~N 40~~ W

A26⁹ — Top of hard bed forming a terrace 20' above road. Found A. spinosa in bed. ~~Specimen~~ not saved.

A 26 10 thick cut in Mt. Marion beds with nodular ledges in stream bed about 3' thick and 5' sandy shale above. In nodular beds Nyassa, Sp. acuminatus?, Sp. 2 sp. Possible equivalent of High (Great Falls). Dip 2° S 14° W. P. flabellum. T. carinatus, C. coronatus.

A 254 — Under bridge at Alcove — at bottom section 5' heavy-bedded ss. in 3 layers separated by thin sandy shale. Then 8' shaly ss followed by 5' heavy bedded ss, the upper 3' with storm roller structure. Above this 4' platy ss with its upper 2' having storm roller structure! In 5' of ss at middle of section come layers of big Camarotoechia. This may correspond to starfish layers at High falls. Dip 2° S 55° W. Heavy-bedded storm roller ss. extends upstream under bluff on S side creek.

August 27 1686 116

Quarry 1 mile S of Westerlo

A – Hard sandy layer 10" thick containing Schizophoria, Tyrossa, [illegible], Sp. n. sp.
B. – Dark blue gray shale with many fossils, Pardicyclas, Orthonota,
C. Calcareous bed with Atrypa & Schizophoria
D. – Dark greenish shale with Orthonota. Saw no Schizophoria

D shale 7'
C 8"
B shale 5'6"
A 10"
Shale 1'

A27¹ – About ~~20~~ 30' of shale exposed in banks of stream. At base above 1' hard ss is calcareo-arenaceous layer about 8" thick containing many Mucrospirifer. Possibly same layer as ~~A2~~ A25. These beds at A27¹ are below the Schizophoria. C. coronatus also common here.

in Os 1/2 mile S of Westerlo

A27² – At about 1070 A.T. hard or lower Schizophoria bed appears in road gutter. About 3' above it comes another zone of Schizophoria and above that
Strike on hard layer N22°W 9°W.
This is probably a local structure.
Schuchertella is plentiful here with the Schizophoria in the lower bed. Suggests layer at Kingston.

shale 8'
Schiz 1"
shale 4'
6" Schiz
Hard heavy bedded ss 3½'

1686a

A272

E S T E R L O

Lambs Corner

South Westerlo

Greenville

Wolf

Fly

Peck

Basic Creek

A27^{3}— Quarry in sandy shale 1037
and thin ss. flags containing 117
Mucrospirifer, C. coronatus +]
Camarotoechia rare. Dormansville

A27^{4}— About 40' falls over
alternating sandy sh + flat ss
layers with storm-roller bed
forming falls. Dickinsons Falls

A27^{5}— Borrowing pit in soft dark gray
crumbly, sandy shale

A27^{6}— About 25-30' lumpy sandstone
+ mudstone.

A27^{7}— Onondaga exposed from
here southeast to Cedar Grove School

A27^{8}— Black Bakoven shale

A27^{9}— Shaly lumpy, dark gray ss with
a small Chonetes.

A27^{10}— deep gully in thin bedded
sandy shales that break down into
thin flakes. Between thinner +
thicker layers of these shale come
ss. flags. Near the head of the
glen the ss become heavier bedded
and thicker forming a falls over
hard thick layers. Stony Hollow bed
probably broken into several hard
beds in this region, which do not

1687a

...northeastern Alaska has been
...ales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.
...surveyed, and the resulting
...000"

...ins Cliff dwelling

Good Public road

Poor Pu... private

...n with lock

Canal lock
(point upstream)

U.S.tow... secu... and recov...

CEM †

Cemeteries

Church, School
(distinguished on recent maps)

Co...

...d

RELIEF
(printed in brown)

...tours
...showing ...water ...in blue)

Depression contours

I...

LN 11

Wharves

Breakwater and jetties

Brid...

...grant ...ine

City, village, or borough line

Small park... cemetery...

...bridge

Mine tunnel

Mine tun...
(showing direc...

WATER
(printed in blue)

...als or ...ches

Aqueducts or waterpipes

Aqueduc... tunnels

Spring, Well

Marsh

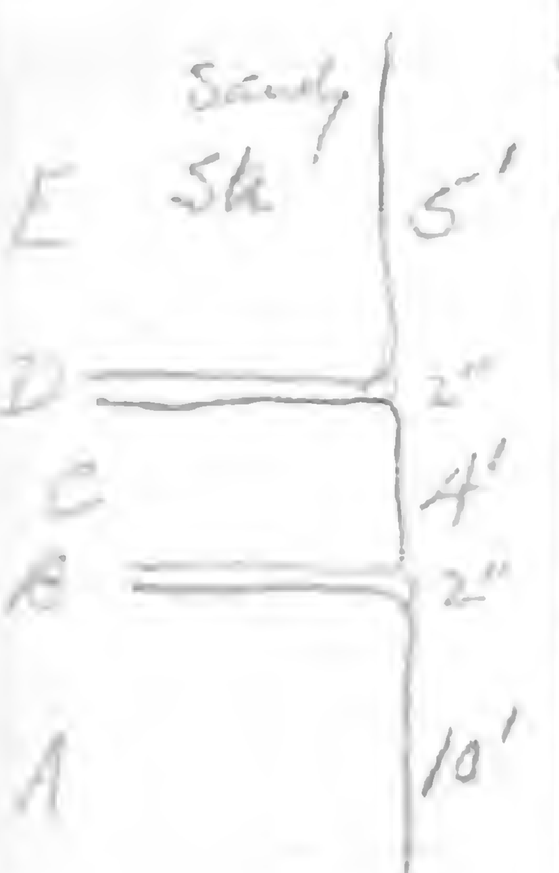
1687a

Reidsville
1544
1416
1570
1397
Van Leuvans Corners
Troutner Lake
1267
Hanaderois Creek
Basic Creek
A28
Westerlo
B.M.
1144
Chesterville
A28
A27
A27'
A27?
Cass Hill
1339
1306
B M
659
763
Clarksville
518
663
524
Bennett Hill
Tarrytown
630
998
999
818
A27?
A27'0
B M
572
on A27
or A27
Copeland Hill
1258
987
Lawson Lake
738
599
831
794
693
Keefers Corners
859
980
Hanaderois Creek
School No 12
835
686
School No 9
Koong Hill
916
641
A27'5
A27'6
Dormansville
HELDERBERG
MOUNTAINS
WEST
S T E R L O
C O

strongly affect the topography

August 28

A28 — Small quarry in rocks not far under Schizophoria bed. Under this quarry are 2' of hard ss. which form a flat. The Schizophoria bed runs along the [illegible] as a ridge on the west and cuts west of the quarry at A28.

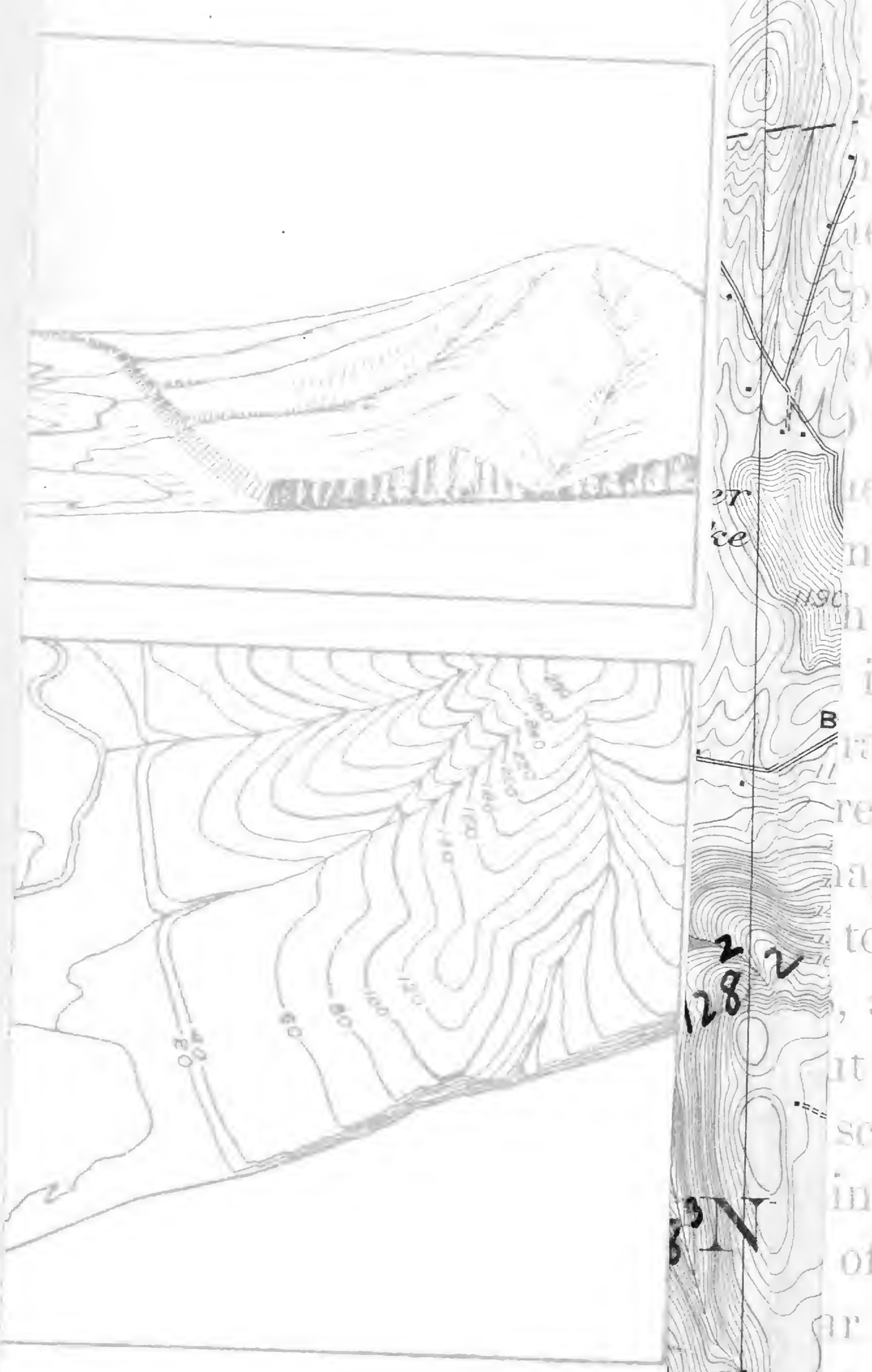


A28' — A - 10' sandy shale with thin ss flags, capped by 2' hard ss with upper bed knotty & somewhat calcareous. Just above this is 2" sandy knotty bed with Schizophoria the lower bed of A27.
C. — About 4' shale with Orthonota
D. — 2" bed with Nyassa, Schizophoria, Schuchertella, Atrypa (same as mid Schiz. zone)
E. 5'+ dark shale with Orthonota

A28² — Coral bed at approximately 1240' A.T. Below it comes sandy dark shales of Cardiff type containing sandstones flags up to one foot thick. Coral bed faunally and lithologically seems to be the same as the bed at Mt. Marion.

About 15' above coral bed and for 10'+ Sp. audaculus is common. Athyris also occurs. This also checks with the Mt. Marion locality. This Sp. audaculus bed is 10-15' thick. Above it fossils are rare

1688a



r lines that are far apart on
lines that are close together
that run together indicate a

r lines express altitude, form,
below.

valley that lies between two

e particular area mapped.
Surveys of areas in which
ic importance, such as most o
its tributaries, are made with
publication of maps on a sca
, with a contour interval of 1
Surveys of areas in which
ic importance, such as much
n of Arizona or New Mexico,
e northwest, are made with s
ublication of maps on a scal
) or $\frac{1}{\text{[illegible]}}$ (1 inch = nearly 4 m
) to 250 feet.
e aerial camera is now being
nation recorded on the pho
h show only drainage and cult
in the United States. By t
ratus, aerial photographs are
regular topographic maps, w
age and culture.
topographic survey of Alask
, and nearly 44 percent of its
t 15 percent of the Territory
scale of $\frac{1}{\text{[illegible]}}$ (1 inch = nearly
inder of the area surveyed t
of $\frac{1}{250,000}$ (1 inch = nearly 4 mil
r economic importance, cover
aps published are on a scale o
ger. In addition to the area

1688a

Indian Ladder

B.M. 1226

Thompsons Lake

1328

1283

JOHN BOYD THACHER PARK

Thompsons Lake

Beaverdam Creek

Fox

Berne

B.M. 1015

Warner Lake

1190

B.M. East Berne

1174

Creek

Switz Kill

Myrtle

Wolf Hill

463

A286

Pinnacle Hill

A287

A285

A284

A283

A282

Aug 29 Stony Hollow Fed

B E R N E

S C H E N E C T A D Y

16885

sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since

16886

Dam

Dam with lock

Canal lock
(point upstream)

U.S. township and section lines and located corners

State

BM x1232

Bench mark
(Temporary bench marks shown by brown cross and black figures without lettering)

CEM

Cemeteries

Church, School
(distinguished on recent maps)

Coke ovens

Tank, oil ves

RELIEF
(printed in brown)

5463

Figures
(showing height above mean sea level instrumentally determined)

Contours
(Contours showing depth of water printed in blue)

Depression contours

Lev

Wash

Cliffs
(or shown by contours)

Mine dumps

Tailings or mining debris

16886

Oct 21
Oct 21
Oct 21

BERNE, N.Y.

Edition of Sept. 1903, reprinted 1928.
Polyconic projection. North American datum

42°30'
74°00'

(Albany) (Coxsackie)

Thompsons Lake
John Boyd Thacher Park
Thompsons Lake
East Berne
Helderberg Mts.
Reidsville
Hannacrois Creek
Troutner Lake
Van Leuvans Corners
Westerlo
Chesterville
Basic

T. 2 N.
T. 1 S.
R. 25 W.
R. 24 W.

Oct 2/3

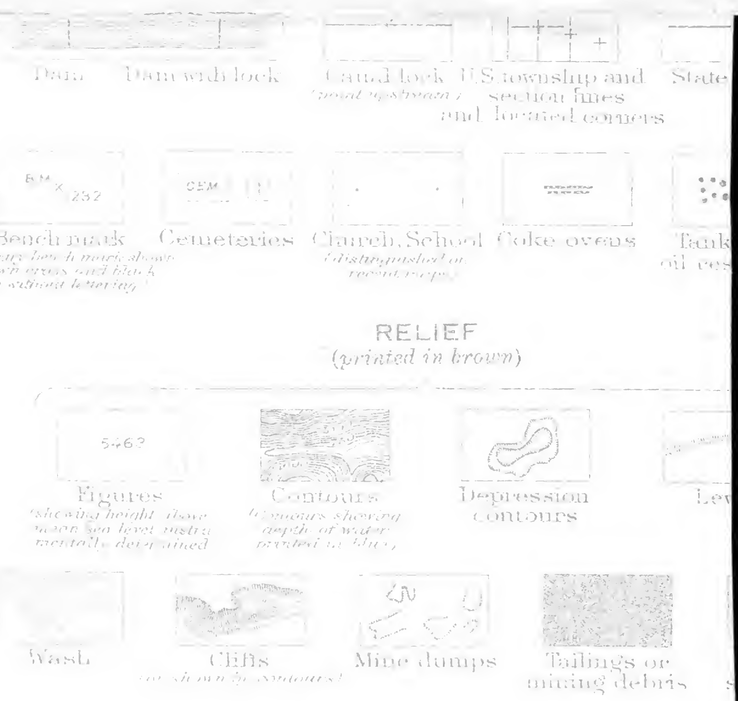
4 Miles
Kilometers

sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.

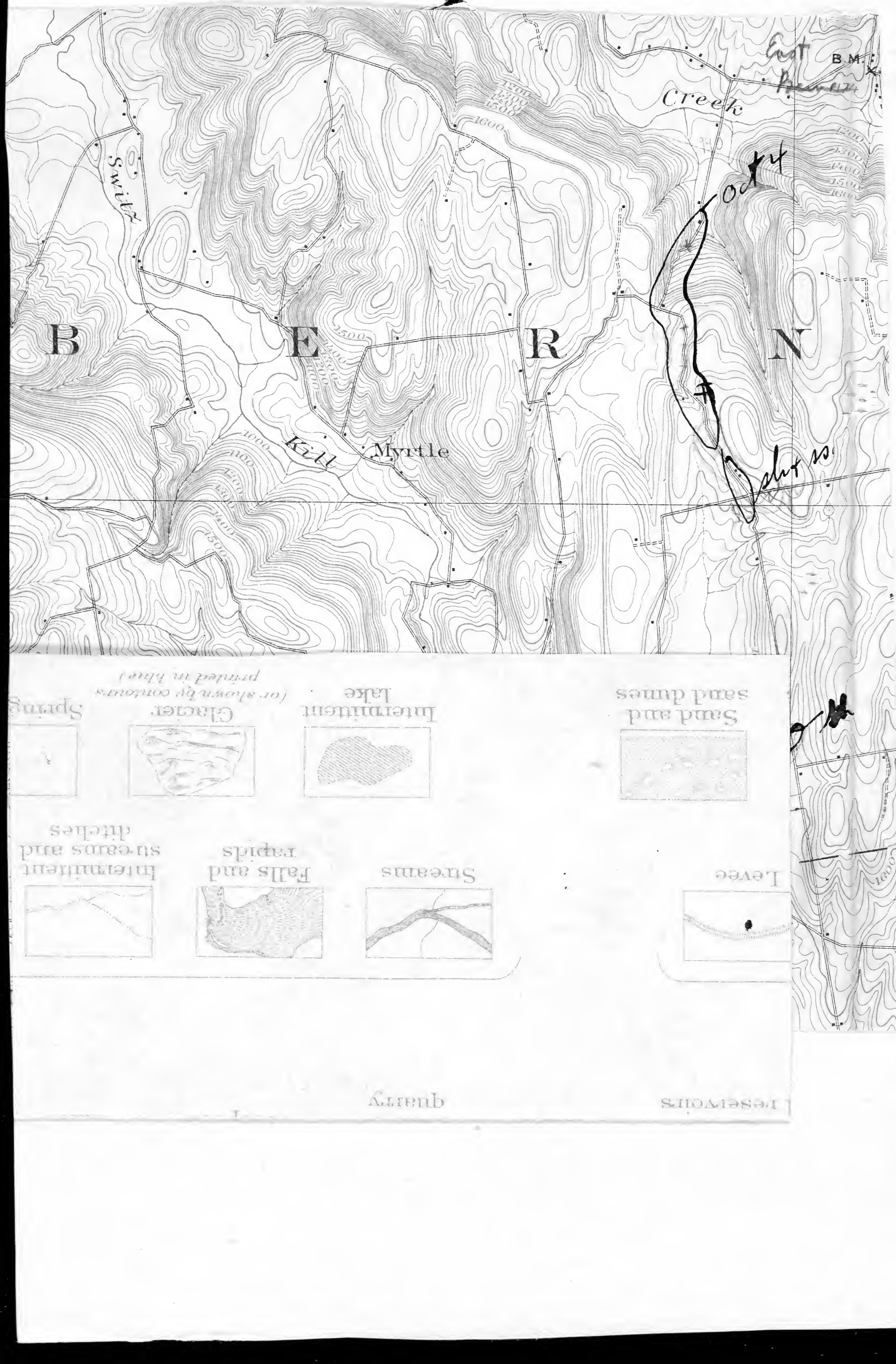
2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

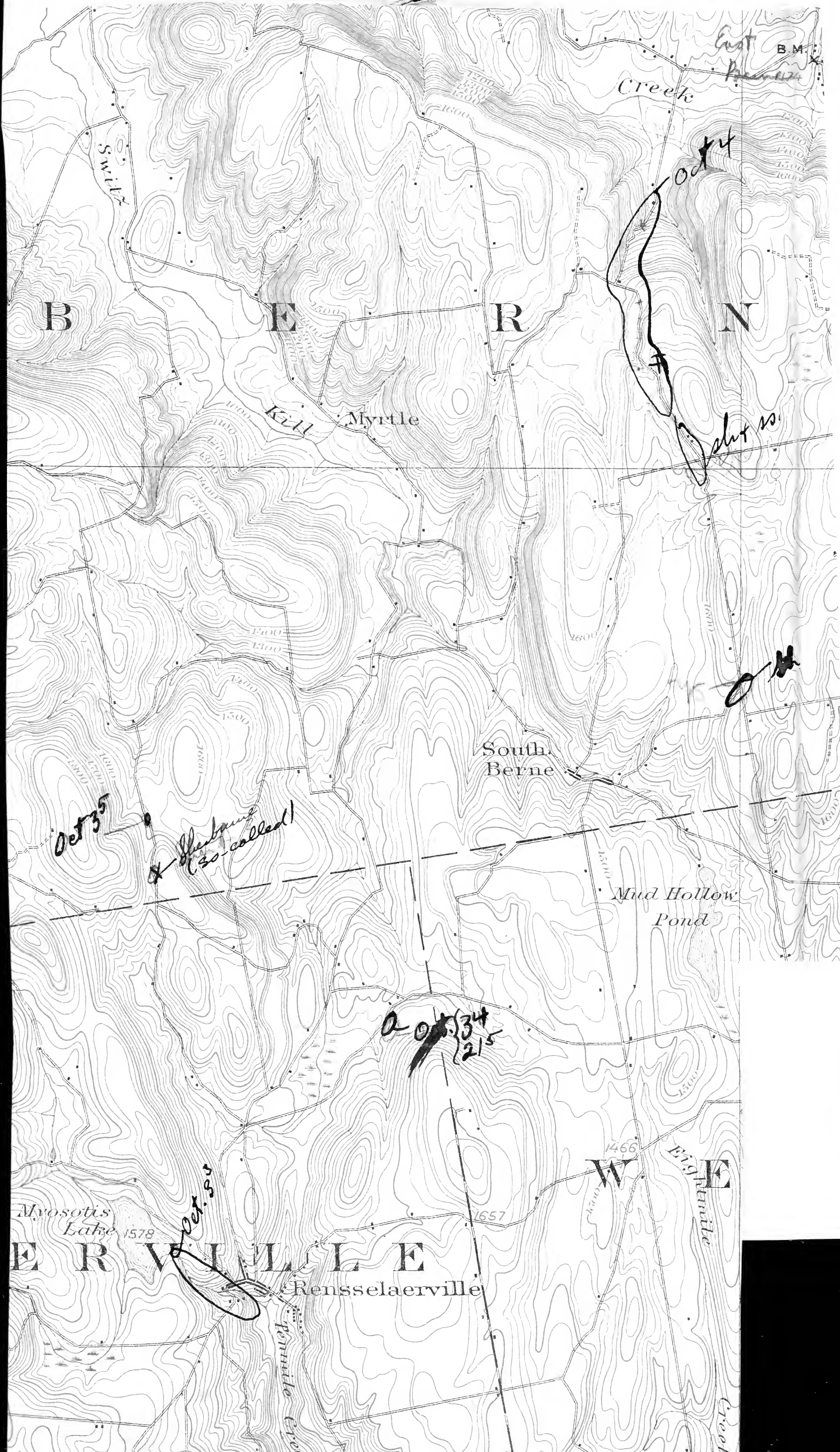
A topographic survey of Alaska has been in progress since



1688c


Creek
B.M.
Swift
1200
1300
1400
1500
1600
B E R N
Kill
Myrtle
1000
1100
1200
1300
1400
1500
Levee
Streams
Falls and rapids
Intermittent streams and ditches
Sand and dunes
Intermittent lake
Glacier. (or shown by contours printed in blue)
Springs
Reservoirs
Quarry

1688c


B.M.
Creek
Swift
B E R N
Kill
Myrtle
South Berne
Mud Hollow
Pond
Myosotis
Lake 1578
E R V I L L E
Rensselaerville
W E
1466
1657
Eightmile
Creek
Oct 4
Oct 35
Oct. 33

1689

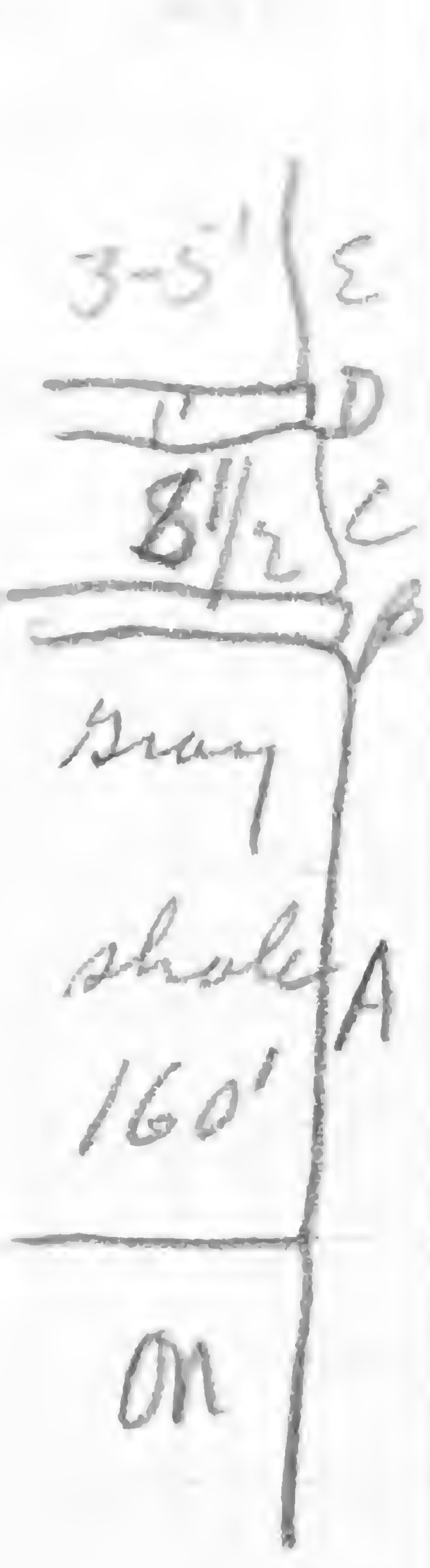
A283 — New cut in heavy bedded shaly ss. with large Tropidoleptus Camarotoechia, fossils scarce

119

A284 — As above East Berne section

A285 — Thin-bedded ss of Colgate type. Mucrospirifer, few fossils

A286 — Pinnacle Hill
A Onondaga in field at base hill where road forks to go uphill. 160' aneroid reading above roads comes a thin limestone Between Onondaga + 1st thin limestone are dark gray shales with white streak + weathering to ash gray. They contain many small fossils particularly Paracardium
B — 3" limy ss. with scattered Holopea or Macrochilus
C. — Gray sandy sh. 8½' heavier bedded than A + coarser
D — 9" – 1' of hard blue gray crinoidal limestone. Just at contact of limestone and bed below Dechenella and small Pentamerella occur. Fossils in the ls. are rare, Weathered pieces from C contain a few small fossils.



1690

E — 3-5 calcareous gray shale with limestone bed at top containing Centropora 120

A787 — Borrowing pit in coarse sandy shale about 5' overlaid by 6-7" heavy so. bed. Over this come 10' brumbly sandy dark gray shale. No fossils seen.

Aug 29

Section on the Onondaga-Wolf Hill section

Section starts at bridge on Onondaga which continues upstream for 356 paces. At 356 paces and for 95 paces (to 451 paces) a low area of the Onondaga brings in the basal Marcellus, and the following section

A — Onondaga

B — calcareous dark shale with Styliolina

C. limestone 7" inches with the upper 2" shaly and containing smooth Spirifers and Leptocoelia

D — 3" shaly limestone with Styliolina

E — rocky shale 1'

Soil	
2-3'	G
2"	F
1'	E
3"	D
9"	C
7"	B
On	A

1091

F- limy shale, black
G- sooty shale with paper thin cleavage 2-3' 121

451-595 poor Onondaga exposed in stream bed. Middle of this interval Onondaga some 4' above stream. At end of Onondaga exposure the base of the Marcellus is not exposed

595- 845 faces opposite school

845-1045 - covered

1045-1528 bank of dark gray fissile shale 20-30' high Effervesces weakly continuous

1528 a large concretion 4' across

1528-1628- same dark shale At 1628a X 5' falls over a hundred contorted zone at base and one at top of falls.

1528-1821 - Continuous exposure

1821 Contorted zone

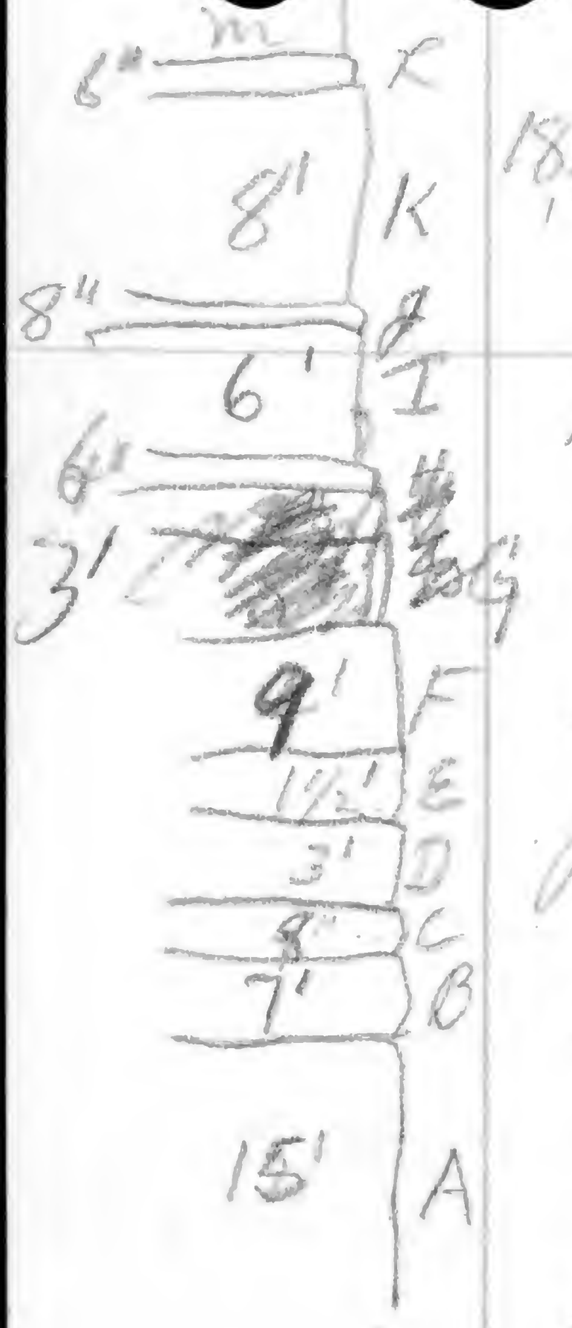
1821-1839 same

At 1839 two large concretions one each side of creek with 1" calcareous bed tying them together, Basic section

1692

122

1839 — 2107 — base of falls
1st Falls of Onequethaw



A — Dark shales with clams & ammi. about 15'

B — Thin bedded ss containing pyrite nodules. 7'

C — Sandy marine ss. bed with pyrite nodules. 8"

D. Firm sandy shale with pyrite and small calcareous nodules scattered thruout 3'

E. Calcareous sandstone & interbedded shale. Palaeoneils. & pyrite 1½

F. Calcareous-arenaceous shale ~~in 6" beds of~~ containing leaves & coffee beans. Amplexus

~~G — 8" thin bedded ss, gray xline~~

H 9"

G. — 3' gray xline ls. interbedded with sandy shales. Upper bed (8" — 10" thick & forming flat in stream & upper bed of falls

Basal ls bed of G. 8" thick gray & xline. Middle ls. bed 6" thick abounds in Cerotopora Upper ls. smooth blue gray Chaetetes Stophalosia

215'

1245
1235

1693
123

H - 6" shaly sandy stone

I - Soft dark crumbly shale 6'

J - SS flag 8"

K - Soft crumbly shale 8'
L - SS flag 6"
M - crumbly sh to soil

Falls covers horizontal interval of about 25' and upper limestone beds extend to form arch 125 paces upstream. At 250 paces above falls comes a 15' falls in dark gray shale capped by a 9" ss bed. Upstream from brink of falls at 1245.' At top of falls strata are topsey turvy and these beds are 10' thick. Above them on each side of stream strata are horizontal + about 50' thick of alternating shal sandy sh + ss flags like Sherburne.

At end of section we saw in a small gorge with strata dipping strongly downstream.

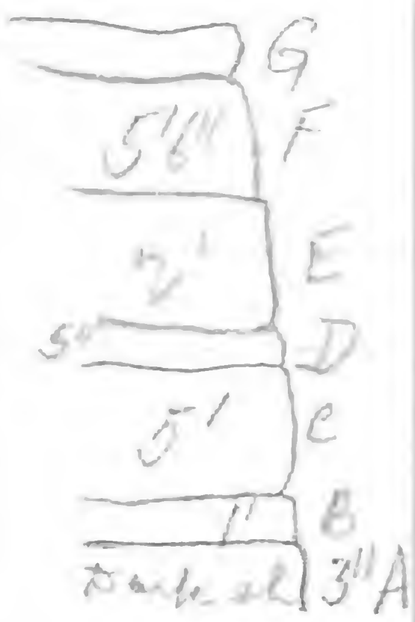
1894

124

August 30

A30 — Cherry Valley of Stony Creek

B. 80 paces upstream from road and 54' by aerial cross a ledge of shaly dark gray limestone about 1' thick. Under this ledge are a few inches of dark shale. In the lower part of the limestone occur small Brachiopods, ostracods a clam and a snail like that occurring ~~at the base of the~~ in the 15' of shale below the hard bed on the Canandaigua.



C - covered 5'

D - 5" gray shaly ls. with ostracods N2°E 2½° W

E - 2' platy, thin bedded shale weathering to brownish gray.

F - Covered 5'6"

G. - 2' dark shale

Aug 30'

Rhipidomella beds lens out laterally under X bedded 55 with plants.

Oak Hill Estheria occur just above lowest obine beds under the bridge in lower 6" of black shale

1095
125

Aug 31

Section up Steenburg Mtn.

1360 – 1380 Green cmbly & mottled red & green mds with O. traced about 10' from top.

1380 – 1403 – X-bedded ss.

1403 – 1421 – Covered

1421 – 1432 – Red, green & dark sh & ss

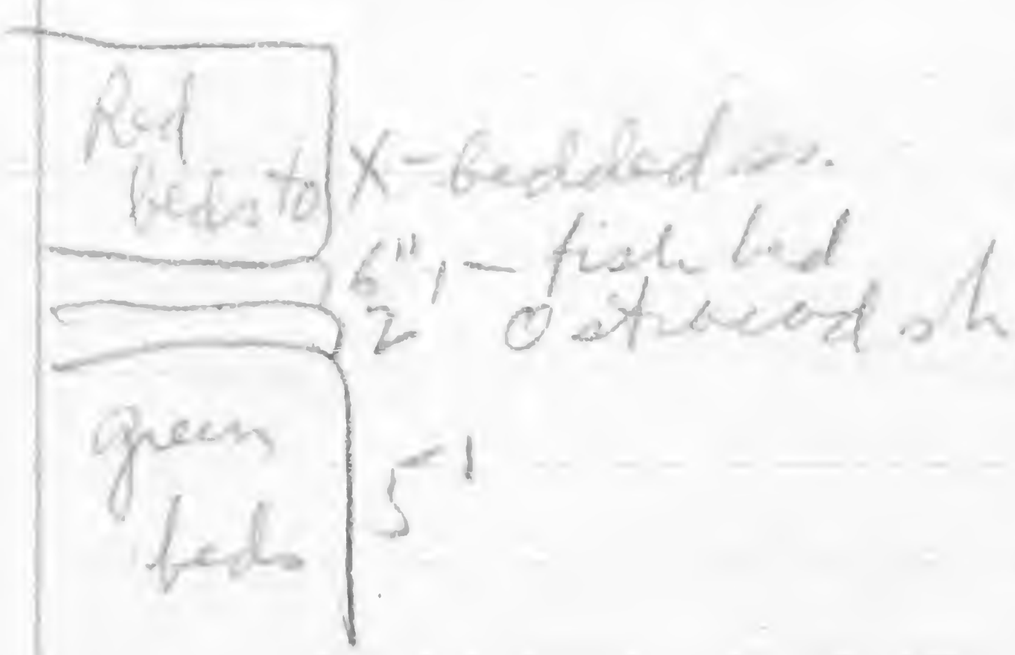
1432 – 1460 – Covered

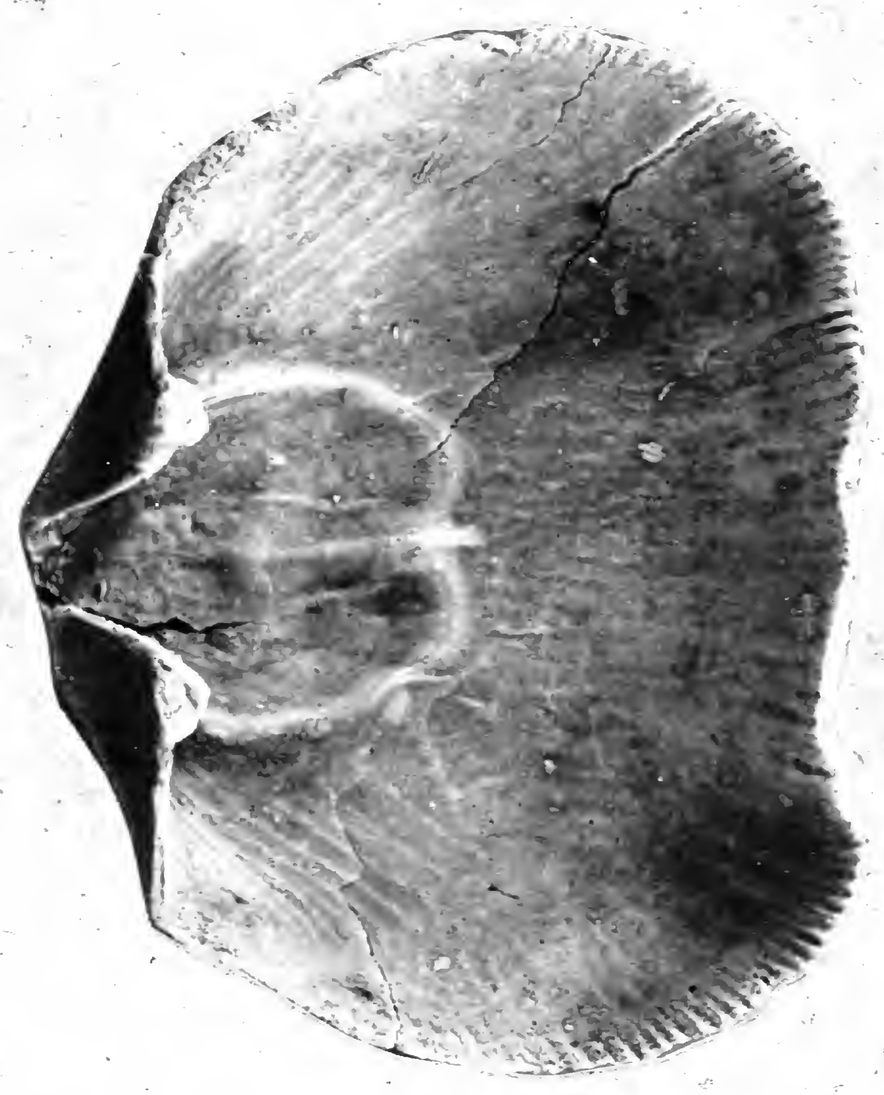
1460 – 1470 – X-bedded red weathering ss & green sh.

1470 – 2135 – mostly covered

2130 – 2145 – X-bedded ss with Protocapnodendron, Eospermatopteris. May be same as outcrop above East of Windham. Possibly beds from which Dawson's sp. Dispumatus came.

Section at 1360





1568

THE TOPO

The United States Geological Survey is making a standard
ographic atlas of the United States. This work has been in
gress since 1882, and its results consist of published maps of
re than 40 per cent of the country, exclusive of outlying
ssessions.

This topographic atlas is published in the form of maps or
ts sheets measuring about 16½ by 20 inches. Under the
eral plan adopted the country is divided into quadrangles
nded by parallels of latitude and meridians of longitude.
ese quadrangles are mapped on different scales, the scale
ected for any quadrangle depending on its nature, and its
bable future development, and consequently though the
ndard atlas sheets are of nearly uniform size they represent
as of different sizes. On the lower margin of each sheet are
uted graphic scales showing distances in feet, metres, and
les. In addition, the scale of the map is shown by a repre-
tative fraction expressing a fixed ratio between linear
asurements on the map and corresponding distances on the
und. For example, the scale $\frac{1}{62500}$ means that 1 unit on
map (such as 1 inch, 1 foot, or 1 meter) represents 62,500
ilar units on the earth's surface.

The standard scales used on these maps are multiples of
fraction $\frac{1}{1000}$. Quadrangles in thickly settled or indus-
ally important regions are mapped on a scale of $\frac{1}{2500}$ or

Jg 312